

THE IDENTIFICATION OF INDIAN BUTTERFLIES

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(Continued from Vol. XXX, page 776.)

Part IX

(With 1 plate)

I. Hesperiliidae. Key to subfamilies and genera.

1a (33a). Body shorter than dorsum H. Larva on dicotyledons. Egg dome-shaped, ribbed.

1b (7a). Palpi 3rd joint peculiar, long, thin, naked, blunt, porrected in front of the face and looking rather like an awl; emanating from a stout 2nd joint, which is erect and appressed to the face. Antennal club long, gradual, curved at the thickest part and tip pointed. F v2 from near base; v4 nearer v5, which is nearer 6. H v2 never after v7; v5 well marked and usually nearer 6. H produced or angled at v1. H tibiae with 2 pairs of spurs. Wings erect in repose.

Ismeniinae. Africa. India and China to Australia.

1c (5a). H v5 tubular, much nearer v6; cell = $\frac{1}{2}$ wing.

1d (4). H v2 about opposite v7.

1 (2a). F v1 distorted at base. H tibiae fringed. ♂ often with a brand up and v2 bent down towards v1.

Hasora, M. India and China to Australia. (= *Parata*, M.)

2a (1). F v1 sinuous but not distorted.

2 (3). Antennal club very long and gradual = $\frac{1}{2}$ shaft. ♂ often with a brand up and v2 displaced also the hind tibiae swollen and tufted.

Ismene, Swainson. India and China to New Guinea. (= *Pola*, *Torthrix*, *Gecana*, *Burara*, *Sartora*, *Zehala*, Swin).

3 (2). Antennal club less than $\frac{1}{2}$ shaft. H tibiae not swollen or tufted; fringed.

Bibasis, M. India to Celebes.

4 (1d). H v2 well before v7. H tibiae fringed. ♂ no brand.

Allora, Waterhouse and Lyell. Moluccas to Australia. (*doleschalli*, Fd.).

5a (1c). H v5 not tubular, midway between vs 4 and 6; v2 well before v7.

5(6). H cell = $\frac{1}{2}$ wing. ♂ hind tibiae with a long tuft. F cell normal; v4 midway between vs 3 and 5.

Rhopalocampta, Wallengren. Africa, India and China to New Guinea. (= *Choaspes*, M).

6 (5). H cell much less than $\frac{1}{2}$ wing. H tibiae fringed. F cell very long and narrow; v4 nearer v5.

Badamia, M. India and China to Australia.

7a (1b). Palpi 3rd joint short, stout and conical. F v2 from near base: v5 nearer v6. H v5 well marked and nearer v6; v2 before or opposite v7. Antennal club shorter; curved or angled at or before middle of club, or at thickest part. Wings flat in repose. ♂ never with a brand or tuft of hairs on the wings.

Celaenorrhinae. America. Africa. India and China to Australia.

7b (14a). H v5 tubular; tornus rounded. Palpi porrect; 3rd joint short; 2nd joint yellow below. Antennae = $\frac{1}{2}$ costa: bent in the middle of the club; pointed.

Capila Group.

7c (10a). Hind tibiae only with terminal spurs; fringed. Clasp of genitalia single, elongate and pointed.

7 (8a). Palpi 3rd joint long. Small size—32 mm.

Exometoeca, Meyrick. West Australia (Albany). (*nycteris*, Mey).

8a (7). Palpi 3rd joint very short. Large—over 40 mm.

Capila Group—(contd.)

8 (9). F v4 mid 3-5; internal cell veinlet forks to bases vs 4 and 5. ♂ no costal fold on F. Eyes red.

Phenicops, Watson. Australia. (*beata* and *denitza*, Hew).

9 (8). F v4 twice as near v5 as v3; internal cell veinlet forks to just beyond base v3 and to base v5. ♂ with costal fold F. Eyes brown. (*critomedia* is aberrant).

Casyapa, Kirby. Moluccas to Australia: (6 species). (= *Chaetocneme*, Fd.). 10a (7c). Hind tibiae with 2 pairs of spurs; tufted in ♂. Clasp of genitalia large, trifold.

10 (11a). Palpi 3rd joint very short and inconspicuous. Eyes red. ♂ usually with a costal fold.

Orthopætus, Watson. N. India and China to Borneo. (= *Pteroxys*, Wat).

11a (10). Palpi 3rd joint short, but conspicuous. Eyes golden brown or black. ♂ no costal fold.

11b (13). Wings broad; F termen equal to or longer than dorsum.

11(12). ♂ with no secondary sexual characters on wings.

Capila, M. N. India and China to Siam and Hainan. (= *Pisola*, M.)

12 (11). ♂ dorsum H turned over and with a long tuft of hairs at the tornus.

Crossiura, DeN. N. India, China and Hainan.

13 (11b). Wings narrow; F dorsum longer than termen. H termen very rounded.

Calliana, M. India, China, Malay States and Borneo.

14a (7b). H v5 not tubular.

14 (15a). Hind tibiae with single pair of spurs; plain. A jugum at the base of the wings as in the Heterocera. Wings very long and narrow. ♂ unh a brown brand along v1. A very aberrant genus.

Euschemon Group.

Euschemon, Db. Australia. (*rafflesia*, McLeay.) (= *Froenati*, Mab.)

15a (14). Hind tibiae with two pairs of spurs.

Celaenorrhinus Group.

15b (20a). F length cell = $\frac{2}{3}$ costa and as long as dorsum. Antennæ pointed. Apex F not truncate.

15c (17a). Palpi 3rd joint inconspicuous, in continuation of 2nd joint which is erect or sub-erect.

15 (16). F v4 much nearer 5 than 3; internal veinlets fork to base v5 and mid. 3-4. ♂ hind tibiae with a tuft of yellow hairs.

Charmion, DeN. Burma to Celebes.

16 (15). F v4 about mid 5 and 3; internal veinlets to bases 4 and 5. ♂ hind tibiae with a tuft of brown hairs.

Celaenorrhinus, Hub. America, Africa, India and China to Celebes. (= *Gehlota*, Doh and *Hantana*, M.).

17a (15c). Palpi porrect.

17 (18a). F v4 further from 3 than from 5; lower cell veinlet to mid 3-4; v5 very slightly bent down at origin parallel to v4.

Hewitsonia, nov. type *aenesius*, Hew. Papuan area. (4 species.)

18a (17). F v4 mid 3-5; lower cell veinlet to base v4; v5 normal. Hind tibiae fringed.

18 (19). ♂ with a costal fold. Wings rounded; H tornus toothed at v1.

Achalarus, Scudder. N. America, N. India and China. (= *Lobocla*, M.)

19 (18). ♂ no costal fold. Apex F and tornus H produced.

Satarupa, M. N. India and China to Java and Borneo.

20a (15b). F cell markedly shorter than dorsum or $\frac{2}{3}$ costa. Palpi porrect.

20b (27a). Apex F not truncate; termen even throughout or slightly excavate in l.

20c (23a). H tibiae fringed.

20d (22). Antennæ bent in the middle of the club.

20 (21). F mv very arched between origins vs 2 and 3. Palpi 2nd joint smooth, brown tipped and rest white.

Tagiades, Hub. Africa, India and China to Australia.

21 (20). F mv straight. Palpi yellow below.

Abraximorpha, Elwes. N. India, N. Burma and China.

Celaenorrhinus Group—(contd.)

22 (20d). Antennæ aberrant, bent near end, beyond thickest part of club; apiculus very slender and short. Wings produced.

Odina, Mab. N. India to Celebes.

23a (20c). Hind tibiae with a tuft in the ♂.

23 (24a). Mid tibiae with a tuft in the ♂, an unique feature.

Mooreana, nov. Type *trichoneura*. N. India to New Guinea.

24a (23). Mid tibiae plain.

24b (26). H dorsum longer than or = costa.

24 (25). H costa evenly rounded at the apex.

Daimio, Murray. India and China to Celebes.

25 (24). H costa distinctly angled at the apex (end v8).

Coladenia, M. Africa, India and China to Philippines.

26 (24b). H costa longer than the dorsum. Antennæ chequered, club and crook very short.

Sarangesa, M. Africa, India to Malay Peninsular.

27a (20b). Apex F distinctly truncate.

27b (29. 30a). Apex F truncate at end v3. H more or less angled at end of v4.

27 (28). Hind tibiae fringed.

Darpa, M. N. E. India to Philippines.

28 (27). Hind tibiae tufted in ♂.

Tapena, M. India to Malay Peninsular.

29 (27b. 30a). Apex F truncate at end v5. ♂ with a costal fold F. Hind tibiae fringed. Palpi 3rd joint unusually long. H angled at end v4.

Netrocoryne, Fd. Australia. (*repanda*, Fd.).

30a (27b. 29). Apex F truncate at end v4. H more or less angled at end vs 4 and 7.

30. (31a). Antennæ tip pointed. Hind tibiae with tuft in ♂.

Ctenoptilum, DeN. N. E. India, China and Burma.

31a (30). Antennæ tip blunt.

31 (32). ♂ with a short dense tuft of white hairs on the fore coxae. Hind tibiae fringed.

Odonoptilum, DeN. India and China to Celebes.

32 (31). ♂ with a long pencil of radiating black hairs attached to the fore coxae. Hind tibiae plain.

Caprona, Wallengren. Africa, India to Celebes. (= *Abaratha*, M. and *Gerosis*, Mab.).

33a (1a). Body as long or longer than dorsum H.

33b (47a). F v5 rather nearer v6 than v4.

33c (37a). H end cell straight; v2 well before v7; v5 well marked rather nearer v4. F v2 mid base and v11; end cell straight. Antennæ = $\frac{1}{2}$ costa; club short, stout and blunt. Palpi long, slender, porrect, usually hairy; 3rd joint stout, short but prominent, porrect. ♂ may have a costal fold upf, a tuft unf or the hind tibiae tufted. Wings rounded. Wings flat, erect or semi-erect in repose; low flying. Larva on dicotyledons. Eggs strongly ribbed.

Hesperitinae.

33 (34a). Antennæ club straight. Cilia plain.

Gomalia, M. Africa, India.

34a (33). Antennæ club more or less bent.

34b (36). F v4 mid vs 3 and 5. Cilia prominently chequered.

34 (35). H termen even. ♂ may have costal fold upf and a tuft on the hind tibiae.

Hesperia, Fab. N. America, Africa, Europe to India and China. = *Pyrgus*, Hub.; *Spialia*, Swin.; *Powellia*, Ob.; *Urbanus*, Hub.; *Erynnis*, Schrank; *Scelothrix*, Ramb.; *Syrictus*, Bdv.; *Muschampia*, Ob.).

35 (34). H termen crenulate. ♂ with costal fold upf and may have tuft unf. *Carcharodus*, Hub. N. Africa, Europe to N. W. India. (= *Spilothyrus*, Dupon).

36 (34b). F v4 much nearer v3 than v5. ♂ may have costal fold upf.

Nisoniades, Hub. N. America, Europe to Chitral and China. (= *Thanaos*, Bdv. and *Thymele*, F.).

37a (33c). H upper apex of cell produced, nearer termen than lower edge; internal cell veinlet has a fork to the origin of v4; vs 2 and 7 opposite.

Hesperiliinae—(contd.)

F v2 mid base and v11 or nearer v11. Antennæ club stout, usually hooked and may be pointed. Palpi inconspicuous; 2nd joint rather flattened, semi-erect or porrect; 3rd joint in continuation of 2nd joint, short, stout, conical, prominent. ♂ may have a brand upf. Body stout. Wings erect in repose.

Trapezitinae. Confined to Australian Region.

- 37b (41a). ♂ no brand.
 37 (38a). H tibiae with terminal spurs only.
Mesodina, Meyrick. Australia. (3 species).
 38a (37). H tibiae with 2 pairs of spurs.
 38a (39a) Antennæ sharp pointed.
Trapezites. Hub. Australia to New Guinea. (12 species) (= *Putlasingha*, Wat.).
 39a (38). Antennæ blunt.
 39 (40). F termen rather shorter than dorsum.
Anisynta, Lower. Australia. (6 species).
 40 (39). F termen much shorter than dorsum.
Oreisplanus, Waterhouse and Lyell. Australia. (2 species).
 41a (37b). ♂ with a brand upf. H. tibiae with 2 pairs of spurs.
 41b (45a). Antennæ tip pointed.
 41 (42a). ♂ with oval brand upf; vl distorted at $\frac{1}{3}$ from base.
Signeta, Waterhouse and Lyell. Australia. (2 species)
 42a (41). ♂ with linear brand.
 42 (43. 44). Uph orange or yellow central band.
Hesperilla, Hew. Australia. (9 species).
 43 (42. 44). Uph unmarked.
Toxidia, Mabilie. Australia to New Guinea (11 species). (= *Telesto*, Bdv. and *Oxytoxia*, Mab.).
 44 (42. 43). Uph with a pair of hyaline discal spots.
Neohesperilla, Waterhouse and Lyell. Australia. (4 species).
 45a (41b). Antennæ tip blunt.
 45 (46). Antennal club hooked or strongly bent before middle.
Motasingha, Watson. Australia. (4 species).
 46 (45). Antennæ club evenly and only slightly bent in middle. Tegumen slender, pointed, quite different to rest.
Dispar, Waterhouse and Lyell. Australia. (*compacta*, But).
 47a (33b). F v5 always nearer to v4 than to v6; the dev vs 6 to 5 always distorted just before v5. Hind tibiae may be fringed, but never tufted in ♂. ♂ never with a costal fold upf. Wings erect in repose, or lower wings may be depressed and given a rotating motion in a horizontal plane. Larva on monocotyledons (except *Cupitha*).

Pamphiliinae.

47b (81a). Antennæ bent at the middle or thickest part of the club.

Section I.

- 47c (75a). Palpi 3rd joint protruding. Eyes never red. H v2 before or opposite v7 (except *Ge*).
 47d (61a). Palpi entirely porrect, 3rd joint prominent, stout. F v5 straight. Antennæ short = costa or less; apiculus very short or absent.
 47e (59a). H v2 well before v7 (except where latter is distorted in ♂♂ of *Aeromachus* and *Ampittia*).
 47f (55a). F v2 before v11.
 47g (50a). H v2 from before middle v8; v2 from mid base and end cell or nearer base. Antennæ club stout and blunt. Palpi 2nd joint slender and clothed with long hairs. Abdomen very long (except *C. pulchra*). H much produced below costa. F tibiae without epiphysis.

Heteropterus Group.

- 47 (48a). F v3 opposite v9. H tibiae with single pair of spurs (2 in *C. abax*). Hyaline white or yellow markings.
Carterocephalus, Led. Europe to China, N. E. India and N. Burma. (= *Aubertia*, Ob.; and *Pamphila*, Auct.; *Steropes*, Bdv.).
 48a (47). F v3 opposite v10. No hyaline markings.

Heteropterus Group—(contd.)

48 (49). Hind tibiae with single pair of spurs. Unh no spots.

Leptalina, Mab. Japan to Central China. (*unicolor*, Br and Gr).

49 (48). Hind tibiae with 2 pairs of spurs. Unh with prominent spots. Cilia F chequered.

Heteropterus, Dumeril. Europe to Japan. (*morpheus*, Pallas).

50a (47g). H v7 from middle or before middle of v8 and v2 always nearer end cell than base. H tibiae with 2 pairs spurs and fore tibiae with epiphysis.

Isoteinon Group.

50b (52a). Abdomen longer than dorsum. Antennæ with short, pointed apiculus. F with white spots.

50 (51). F cilia chequered. Tegumen divided. Unh yellow with numerous large, white spots. F with prominent hyaline spots.

Isoteinon Fd. Japan to Tonkin. (*lamprospilus*, Fd.).

51 (50). F cilia plain. Tegumen undivided. Unh grey with few whitish spots. F with obscure semi-hyaline spots.

Elwesia, nov. Chitral. Type *lesliei*, nov.

52a (50b). Abdomen = dorsum. F no discal hyaline spots.

52 (53a). Antennæ club blunt, stout, arcuate. F broad; Unh narrow-yellow band.

Barca, DeN. W. Thibet. (*bicolor*, Ob). (= *Dejeania*, Ob.).

53a (52). Antennæ club gradual, short, fine pointed apiculus.

53 (54). F vs 11 and 12 separate; v2 from near base. Unmarked.

Apostictopterus, Leech. (= *Tacupa*, Swin.). W. China to N. E. India.

54 (53). F vs 11 and 12 approximate; v2 from just before v11. Unmarked except for small hyaline apical spots F and unh more or less obscure ferruginous bands.

Astictopterus, Fd. China and N. E. India to Philippines.

55a (47f). F v2 opposite v11. No hyaline spots.

Ampittia Group.

55b (57a). F v5 quite straight. ♂ no brand. Below with prominent scaling. Antennæ club gradual with short, pointed apiculus.

55 (56). F v6 from well below apex cell; costa highly arched. Upf no prominent markings.

Ochus, DeN. N. E. India to Tonkin.

56 (55). F v6 from end cell; costa straight. Upf usually with prominent discal and apical yellow spots.

Baracus, M. India, N. Burma, Philippines.

57a (55b). F v5 slightly bent down at origin. ♂ may have a brand upf from v1 to v2 and on H vs 6 and 7 hairpinwise.

57 (58). Above with prominent yellow markings and unh with yellow scaling. Antennæ apiculus absent or very short and gradual.

Ampittia, M. India and China to Sumatra.

58 (57). Above unmarked or with small white spots; unh olive grey or black. Antennæ apiculus short and gradual or very fine and abrupt.

Aeromachus, DeN. India, China and Japan to Philippines. (= *Machacus*, Swin.).

59a (47e). H v2 about opposite v7. F hyaline white spots.

Arnetta Group.

59 (60). F v2 nearer end cell than base.

Pedestes, Watson. N. E. India.

60 (59). F v2 nearer base than end cell. ♂ in two species with a tuft of hairs unf and bases vs 2 and 3 H swollen.

Arnetta, Watson, India, Burma, Sumatra.

61a (47d). Palpi never conspicuously porrect, 2nd joint semi-erect or erect. Antennæ apiculus well defined.

61b (71a). F v5 not bent down at origin, so as to be very much nearer v4 than to v6.

61c (66a). Palpi 3rd joint long, slender, erect. (except in some *Koruthaialos*).

Suastus Group.

- 61d (64a). F v11 not running close to v12. Antennæ apiculus short.
 61e (63). F v2 from mid base and v11.
 61 (62). H v2 from well before v7. F v4 nearer to v3 than v5. ♂ may have alar sex marks.
Iambrix, Watson. India and China to Java and Borneo. (= *Mimambrix*, Riley and *Idmon*, DeN).
 62 (61). H v2 opposite v7. F v3 mid vs 4 and 5. F usually with hyaline spots.

Suastus, M. India to Sumatra and Borneo.

- 63 (61e). F v2 from just before v11. ♂ upf a seam from mid v1 to base v4. Hyaline spots F and H.

Inessa, DeN. Lombok.

- 64a (61d). F v11 approximate to v12.
 64b (66). H no tuft of hairs base costa.
 64 (65). Antennæ long, over $\frac{1}{2}$ costa = cell; apiculus long, fine and hooked. Hyaline spots F and H.

Scobura, Elwes. N. E. India to Sumatra and Borneo. China.

- 65 (64). Antennæ short = $\frac{1}{2}$ costa, not so long as cell; apiculus obtuse, short. May be hyaline spots F.

Suada, DeN. N. E. India to Philippines.

- 66 (64b). ♂ H tuft of long thin hairs base costa and unf short oblique scales overlying a groove under the basal part of the scv. No hyaline spots; usually a red band upf.

Koruthaialos, Watson. N. E. India to Philippines. (= *Arunena*, Swin and *Corythæolos*, Mab.)

- 67a (61c). Palpi 3rd joint very short, blunt, conical. No hyaline spots except in ♀ of *Ge*.

Sancus Group.

- 67 (68a). F v11 touches v12. Antennæ = $\frac{1}{2}$ costa. ♂ unf with a brown band under origin of v2. Costa F more arched than usual at base. Above unmarked.

Sancus, DeN. India to Celebes.

- 68a (67). F v11 close to v12, but not touching it.
 68 (69a). Antennæ = $\frac{1}{2}$ costa; club stout. F v3 just before end cell. Unmarked.

Watsoniella, Bery. N. E. India to Burma. (= *Watsonia*, El, and *Stimula*, DeN).

- 69a (68). Antennæ = $\frac{2}{3}$ costa. F v3 well before end cell. H v2 just after v7.

69 (70). Antennæ with a very long fine hooked apiculus. ♂ upf with a circular patch of recumbent hairs under origin of v2.

Ge, DeN. S. Burma to Java and Borneo.

- 70 (69). Antennæ with an obtuse apiculus. F broad yellow central band.

Ilma, Swin. (*irvina*, Plotz). Celebes.

- 71a (61b). F v5 bent down at origin and conspicuously nearer v4 than 6 (except *K. fulgur*). Palpi 3rd joint short, blunt and conical.

Udaspes Group.

- 71b (73a). F v3 not close to v4, opposite v10 or 11. No hyaline spots. Antennæ club slender and gradual.

71 (72). Palpi 2nd joint erect. Unmarked or a red band upf.

Kerana, Dist. N. E. India to Philippines. (= *Tamela*, Swin.).

72 (71). Palpi 2nd joint porrect.

- Ancistroides*, But. Borneo to Celebes. (*othonias*, Hew and *longicornis*, But.).
 73a (71b). F v3 very close to v4 and opposite v9. Large hyaline spots. Antennæ club stout.

73 (74). Antennæ = $\frac{1}{2}$ costa. Palpi porrect. Hyaline spots F and H.

Udaspes, M. India and China to Java.

- 74 (73). Antennæ more than $\frac{1}{2}$ costa. Palpi erect. Hyaline spots only on F. *Notocrypta*, DeN. India and China to Australia. (= *Pleisoneura*, Fd.).

75a (47c). Palpi not protruding, 3rd joint shows as a nipple and the scales round it are flattened and depressed; 2nd joint very stout, erect and appressed to face. Eyes red. Antennæ club stout, apiculus obtuse, pointed.

Erionota Group.

- 75b (78a). F apex cell rounded; v5 straight.
 75 (76a). H v2 well before v7. F large hyaline yellow spots. ♂ upf glandular streaks along mid v1 and basal $\frac{1}{2}$ of v2: unf thick patch of recumbent hairs along v1; uph basal $\frac{1}{2}$ of vs 2 and 3 swollen, v2 being shifted to near base.
Gangara, M. India to Philippines.
 76a (75). H v7 before v2 unless distorted in ♂ (No. 77).
 76 (77). H lower end cell only slightly bent up. F large hyaline spots.
Erionota, Mab. India to New Guinea, China.
 77 (76). H lower end cell much bent up in ♀. ♂ unmarked above; ♀ large yellow hyaline spots F. ♂ upf large patch dense black scales in centre of disc; unf tuft and H veins swollen as in No. 75.
Paduka, Dist. India to Celebes.
 78a (75b). F upper apex of cell acutely produced.
 78 (79a). F v5 straight. H v2 opposite v7. Large hyaline yellow spots F and H. ♂ upf a brand along v1.
Pudicitia, DeN. N. E. India.
 79a (78). F v5 bent down at origin. H v7 well before v2. Above unmarked.
 79 (80). ♂ uph large tuft black hairs attached below v8. Cells very short Antennæ long and slender.
Matapoides, Druce, Borneo. (*smaragdinus*, Druce).
 80 (79). ♂ upf brand from mid v1 to below base v3. Antennæ = $\frac{1}{2}$ costa, club stout.
Matapa, M. India and China to Moluccas.
 81a (47b). Antennæ bent beyond thickest part of club. (*Taractrocera* and *Thymelicus* are aberrant).
 81b (97a). Palpi 2nd joint stout, never conspicuously flattened at end, erect or nearly so. Antennæ usually very long and apiculus always well developed, fine, more or less hooked. Usually hyaline spots F.

Pamphilinae, Section II.

- 81c (96). Palpi 3rd joint erect.
 81d (85a). F v3 opposite v9.

Hyarotis Group

- 81e (84). F v4 much nearer v3 than 5. Antennæ over $\frac{1}{2}$ costa.
 81f (83). ♂ no alar sex marks.
 81 (82). H v7 well before v2. Palpi 3rd joint long, thin and erect.
Oerane, DeN. S. Burma to Philippines.
 82 (81). H v7 about opposite v2. Palpi 3rd joint short and stout as in rest of group.
Hyarotis, M. (= *Quedara*, Swin). India to Philippines.
 83 (81f). ♂ unf long tuft of hairs on dorsum, partly turned up and partly turned down.
Itys, DeN. N. E. India to Java.
 84 (81e). F v4 mid vs 3 and 5. ♂ upf glandular streak along mid v1 and base v2.
Zographetus, DeN. India to Philippines.
 85a (81d). F v3 opposite v10 or 11. Antennæ long, over $\frac{1}{2}$ costa.
 85b (88a). F v4 not nearer v5 than to v3. (some species of *Plastingia*, *Pirdana* and *Lotogus* are aberrant).

Plastingia Group.

- 85 (86, 87). ♂ upf dark oval brand above basal $\frac{1}{4}$ of v1; unf a tuft mid dorsum; uph a tuft of recumbent hairs in 7 from near origin of v8 and ternal cilia elongated.
Isma, Dist. (= *Lophoides*, Watson). Burma to Java and Borneo.
 86 (85, 87). ♂ upf may be a stigma mid v1 to base v4; an oval brand basal $\frac{1}{4}$ of v1; ternal cilia H elongated. F v5 slightly bent down at origin (straight in *Isma*).
Sepa, DeN. S. Burma to Philippines.
 87 (85, 86). ♂ no alar sexmarks. F v5 may be straight or acutely bent down at origin.

Plastingia Group—(contd.)

Plastingia, But. India to Celebes. Aru.

88a (85b). F v4 much nearer v5 than 3.

88b (91a). F apex cell not produced and cell not = dorsum.

Lotongus Group.

88c (90). Abdomen below brown.

88 (89). Eyes brown. ♂ no alar sexmarks.

Lotongus, Dist. N. E. India and China to Philippines.

89 (88). Eyes red. ♂ either a seam upf or a brush uph. Tornal cilia orange.

Zela, DeN. (= *Zampa*, DeN.). N. E. India to Philippines.

90 (88c). Abdomen below white, also cilia H. ♂ unf in one species a large area of black modified scales.

Acerbas, DeN. S. Burma to New Guinea.

91a (88b). F apex cell acutely produced and cell = dorsum.

Unkana Group.

91b (95). Above prominent hyaline spots. Tornal cilia H not orange.

91 (92a). F v2 mid base and v3.

Zea, Dist. S. Burma to Borneo.

92a (91). F v2 much nearer base than v3.

92 (93a). ♂ upf a thin seam from below v2 to base v3; unf a tuft mid dorsum. Cilia H white.

Ection, DeN. S. Burma to Borneo.

93a (92). ♂ no alar sexmarks.

93 (94). F v5 straight.

Unkana, Dist. Burma to Philippines.

94 (95). F. v5 bent down at origin.

Hidari, Dist. Burma to Borneo and Java.

95 (91b). Above no hyaline spots. Tornal cilia H orange. Below usually green.

Pirdana, Dist. (? = *Biaka*, Joicey and Talbot). N. E. India to New Guinea.

96 (81c). Palpi 3rd joint very long, stout, porrect. ♂ upf obscure glandular streak along middle v2 and uph dorsum clothed long dense hairs.

Creteus Group.

Creteus, DeN. N. E. India. Borneo.

Pamphilinae. Section III.

97a (81b). Palpi 2nd joint more or less flattened at end. Antennæ usually short. F v5 bent down at origin. Eggs generally smooth.

97b (102a). Antennæ with gradual, well formed, slender apiculus, usually hooked. Palpi 2nd joint semi-erect; 3rd joint short, porrect.

Halpe Group.

97 (98a). F v2 form near base. Antennæ long = $\frac{3}{4}$ costa. F v4 nearer 5 and apex of cell produced. Upf from origin v2 basal part of v2 and mv swollen.

Gehenna, Watson. S. Burma to Celebes.

98a (97). F v2 from mid base and end cell, opposite v11 or just before it. Antennæ about $\frac{1}{2}$ costa.

98b (101). H v7 before or opposite v2. F v5 bent down.

98 (99a). Antennæ apiculus very long = length club. ♂ in one spec with a brand in 1 upf and vs 1 and 2 distorted: H vs 6 and 7 hairpinwise.

Pithauria, M. N. E. India and China to Borneo and Java. (= *Pithauriopsis*, W. M.)

99a (98). Antennæ apiculus never as long as the club.

99 (100). ♂ upf usually a brand from mid v1 to v3 and v1 may be distorted; H vs 6 and 7 hairpinwise, when brand is present upf.

Halpe, M. India and China to Celebes. (= *Thoressa*, Swin.).

100 (99). ♂ uph long tuft recumbent black hairs in 7 from origin v8; some glandular scaling about lower edge of cell,

Onryza, Wat. Burma and Siam.

Halpe Group—(contd.)

101 (98b). H v2 well before v7; cell very short and tornus rounded. F v5 straight. ♂ unf a tuft mid dorsum and uph an oval brand in cell.

Sebastonyma, Wat. N. E. India and Burma.

102a (97b). Antennæ apiculus short, abrupt, very fine and usually upturned at end. (*Taractrocera*, *Thymelicus*, *Eogenes* and *Arrhenes* are aberrant.)

102b (112a). F cell veinlet has no fork to the origin of v3 or 4. Above dark brown and yellow.

Pamphila Group.

102c (104a). Palpi 3rd joint porrect. F v2 mid base and v11. H v2 before v7.

102 (103). Apex cell produced. Antennæ = $\frac{1}{2}$ costa; apiculus short and stout.

Actinor, Wat. N. W. Himalayas.

103 (102). Apex cell rounded. ♂ with a circular pouch in cell uph, whence wax oozes; mv distorted; F dorsum bowed, v1 distorted and unf a yellow tuft near base dorsum over a polished area. Antennæ with fine, short apiculus. Larva on dicotyledons, Generally aberrant.

Cupitha, M. India to Philippines.

104a (102c). Palpi 3rd joint erect. F v2 just before v11.

104b (111a). H v7 from much nearer end cell than base and about opposite or after v2.

104c (108). Palpi 3rd joint long and thin.

104 (105a). H no tuft of long thin hairs at base costa and unf no scales from basal part of v12 overlying scv. Antennæ normal. ♂ no brand.

Nicevillea, nov. type *gola*. India to Australia.

105a (104). H with a long tuft of thin hairs at base costa and unf obliquely placed scales from basal part of v12 overlying scv.

105 (106a). Antennæ club aberrant consisting of a hollowed disc; antennæ = $\frac{1}{2}$ costa. ♂ may have brand upf.

Taractrocera, But. India and China to Australia. (= *Bibla*, Mab).

106a (105). Antennæ club normal; length rather over $\frac{1}{2}$ costa.

106 (107). Antennæ apiculus commences well beyond thickest part of club and is very fine throughout. ♂ may have a brand upf.

Padraona, M. India and China to Australia. (= *Ocybadistes*, Heron).

107 (106). Antennæ apiculus commences near thickest part of club and tapers to a point, always obtuse; club distinctly flattened. Wings much squarer. ♂ usually with a brand upf.

Arrhenes, Mab. Moluccas to Australia. (5 or more species).

108 (104c). Palpi 3rd joint short, stout and conical. ♂ may have a brand upf or a tuft uph.

Telicota, M. India and China to Australia. (= *Corone*, Mab and *Cephrenes*, Waterhouse and Lyell).

109 a (104b). H. v7 from mid base and end cell, before v2. ♂ usually with a brand upf from mid v1 to base v4.

109 (110. 111). Antennæ apiculus = club.

Augiades, Hub. Europe to China. N. India and N. Burma.

110 (109. 111). Antennæ apiculus = $\frac{1}{2}$ width club.

Pamphila, Fab. Europe to N. Asia. N. W. India. N. America. (*Urbicola*, Hub; *Erynnis*, Auct).

111 (109. 110). Antennæ without apiculus, club blunt.

Thymelicus, Hub. Europe to N. C. and W. Asia. N. Africa and N. America. (8 species). (= *Adopaea*, Billberg and *Pelion*, Kir).

112a (102b). F internal cell veinlet with well marked branch to origin of v3 or 4. Usually dark brown with hyaline spots. F apex cell produced.

Oegenes Group.

112b (114a). Antennæ very long = $\frac{2}{3}$ costa. Palpi erect, 3rd joint very short. F v2 mid base and v11.

112 (113). H with a tuft of long thin hairs, base costa and unf scales from basal part v12 obliquely overlying scv. Cilia H white. ♂ upf a small circular brand above v1 or a seam from mid v1 to v3.

Sabera, Swin. New Guinea to Australia. (4 species).

Gegenes Group—(contd.)

113 (112). H no tuft thin long hairs, base costa or unf oblique scales overlying scv. ♂ with brand upf.

Mimene, Joicey and Talbot. (= *Mimas*, DeN). Moluccas and New Guinea area. (9 species including *atropatene*, Fr. and *hasoroides*, Elwes).

114a (112b). Antennæ = $\frac{1}{2}$ costa more or less.

114b (117). Palpi erect, 3rd joint short. F v2 just before v11. H lower end cell produced and bent up; v7 before v2.

114c (116). Antennæ apiculus short, but well developed and pointed.

114 (115). F v5 only slightly bent down at origin; v4 mid vs 3 and 5. H cilia white. ♂ in one species unf with a tuft of hairs mid dorsum.

Iton, DeN. N. E. India to Celebes.

115 (114). F v5 acutely bent down at origin; v4 nearer v5. ♂ may have a brush uph and a brand upf; a tuft near base dorsum unf; a discal stigma upf; or no sex marks.

Baoris, M. Africa. Syria. India and China to Australia.

(= *Parnara* and *Chapra*, M; *Calloris*, Swin; *Polytremis*, Mab; *Milena*, Evans).

116 (114c). Antennæ very short and apiculus minute.

Gegenes, Hub. Africa. S. Europe to N. W. and N. India. (= *Philoodus*, Ramb).

117 (114b). Palpi 3rd joint porrect. Antennæ no apiculus. F v2 nearer base than end cell; v4 mid 3 and 5. H v5 prominent and bent down at origin.

Eogenes, Mab. Asia Minor to C. Asia and Chitral.

Note.—The arrangement of genera is based upon Watson's work and any modifications introduced by De Niceville, Mabille, Elwes, Fruhstorfer, Swinhoe and Bell have been carefully considered. In order to work out the group, I have found it necessary to study the species occurring from Europe to Australia and I have dissected and examined members of nearly every known species. So as to make the key as useful as possible I have included all the genera occurring in the area dealt with. Except perhaps for Central America the Hesperiidæ attain a maximum development in the Indian Empire as regards numbers of species and since species new to India are frequently turning up, I have included in the keys species (not races) occurring in Persia, Central Asia, Thibet, S. W. China, Siam, the Malay Peninsular and the Malay Islands. The inclusion of non-Indian species no doubt increases the bulk of these articles somewhat, but renders them useful to a wider class of readers.

The classification of the *Pamphilinae* presents peculiar difficulties; I have divided the subfamily into three sections and each section into a number of small groups. I do not consider that further sub-division into sub-families is justified at the present time.

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For the Hesperiidæ of Australia I would refer students to 'The Butterflies of Australia' by Waterhouse and Lyell, 1914. For the Malay Peninsular there is Distant's 'Rhopalocera Malayana', 1888. For Java there is 'The Rhopalocera of Java' by Piepers and Snellen, 1910. For Sumatra there is 'The Butterflies of Sumatra' by De Niceville and Martin, 1895. There are various old lists of the butterflies of the Philippines, Buru, Ke Islands, etc., but generally speaking the Hesperiidæ of the area from Borneo to New Guinea require a great deal more investigation.

I. 1. Hasora. The Awls (referring to the shape of the Palpi). (Plate 30).

Above dark brown, usually unmarked in the ♂; ♀ usually with pale yellow hyaline spots F. Below plain, may be purple or green washed and may have a prominent pale band H.

1a (6a). Tegumen with a single pair of horns at the back. ♂ without brand upf.

Myra Group.

1b (5). Unh no prominent pale band.

1c (4). Unh no green wash.

Myra Group—(contd.)

1d (3). Unh no dark central band.

1 (2). Tornus H not yellow. Above unmarked; cilia H fuscous. ♀ uph basal $\frac{2}{3}$ clothed yellow hairs. Unh brown, no prominent pale spot over the black tornus. Small with rounded wings.

mus pahanga, nov. (45-50). Gunong Tahan, Pahang. Perak. The Plain Awl. (*mus*, Elwes, from Borneo has cilia uph yellow and unh a prominent pale subterminal spot; paler). R.

2 (1). Uph and unh tornus broadly yellow. ♀ with large hyaline yellow spots upf.

myra; Hew. (52). Java and Sumatra. The Yellow Awl.

3 (1d). Below dark brown with a dark discal band, paler beyond band. Lobe H insignificant.

α. Below with a slaty glaze; unh small pale yellow spot end cell and a pale subterminal spot; the tornus is not dark. ♂ upf usually with one or two minute apical spots. ♀ with prominent apical and discal spots.

lizetta anura, DeN. (45-55). Mussoorie to N. Burma. C. and W. China. N. Siam. The Lobeless Awl. R.

β. Below dark brown with no slaty glaze. Unh no pale cell spot and subterminal patch obscure, but tornus is black. ♂ upf no apical spots.

lizetta lizetta, Plotz. Probably S. Burma. Malay Peninsular, Sumatra, Java, Nias and Sumbawa. (= *hadria*, DeN; *wortha*, Swin; *tantra and awajra*, Fruh). R.

4 (1c). Unf apex and costa and all unh washed greenish blue, tornus black and a pale subterminal patch. ♀ upf small pale yellow hyaline spots in cell, 2 and 3.

salanga, Plotz. (50-55). The Green Awl. Dawnas—Malay Peninsular, Nicobars, Sumatra, Java and Borneo. (= *woolletti*, Riley). R.

5 (1b). Unh broad bluish white discal band, outwardly diffuse and broken above black tornal lobe; washed bluish inside the band. Unf some bluish white scaling end cell and an obscure narrow discal band, curved in at costa. ♀ upf prominent pale yellow discal spots in 2 and 3, which may be traceable as dots unf in ♂. Very like *vitta*.

proxissima, Elwes (45-50). The Scarce-banded Awl. Siam. Borneo. Philippines. VR.

6a (1a). Tegumen with 2 pairs of horns at the back.

6b (9a). ♂ no brand.

Badra Group.

6 (7a). Unh no pale discal band; a prominent white spot end cell and a pale subterminal spot over the black lobe; lobe well developed.

α. ♂ below dark ochreous, apex F and disc H broadly pale ochreous; in ♀ purple washed. ♂ upf no apical dots; ♀ large yellow spots in cell, 2 and 3 and apical dots 6-8.

badra lanka, nov. (50-55). The Common Awl. Ceylon. NR.

β. ♂♀ below strongly purple washed and unf a black area beyond end cell. ♂ upf usually with apical dots.

* *badra badra*, M. S. India, Sikkim to Burma, Andamans. China, Formosa. Malay Peninsular, Sumatra, Java, Borneo to Lombok. C. (= *godama*, *sankarya* and *madatta*, Fruh. In the Philippines, Celebes and Moluccas there occurs a race with much larger spots unh, *quadripunctata*, Mab = *gnaeus*. Pl. and *celebica*, Stg.).

7a (6). Unh with a pale discal band.

7 (8). ♂ above unmarked. ♀ with large white spots in cell, 2 and 3 and apical dots; bases clothed pale hairs, broadly so on H. Unh dark brown with broad white sharply defined discal band narrowing posteriorly, becoming in ♂ obsolete below v2.

borneensis, Elwes. (60-64). Borneo.

8 (7). Upf always a prominent white apical dot in 6 and rarely also in 7; prominent discal spots in 2 and 3 in ♀ and usually a dot in 3 in ♂. Unh obscurely blue washed, a broad bluish white discal band, outwardly diffused and broken subterminally; tornus black. Unf some obscure bluish white scaling at end cell, apex pale and inner edge of pale area straight, not curved as in *proxissima*, *alexis*, *laminatus*.

Badra Group—(contd.)

vitta, But. (45-55). The Plain Banded Awl. Orissa, Sikkim to Burma, S.W. China, Andamans, Siam, Malay Peninsular, Sumatra, Java, Borneo. (= *chabrona*, Pl. *proximata*, Stg., appears to be the race from the Philippines and Celebes).

subcaelestis, Roth, New Guinea; *umbrina*, Mab=*habroa*, Swin, Celebes; *discolor*, Fd = *mastusia*, Fr, Moluccas to Australia, belong to this group; *latifascia*, J and T; *splendida*, Mab; *simillima*, Roth are probably conspecific with *discolor*.

9a (6b). ♂ with a brand.

9b (11a). ♂ brand consists of glandular streaks along vs 1, 2 and 3.

Thridas Group.

9 (10). Unh plain brown with a more or less well developed pure white discal band. ♂ upf with pale yellowish white discal spots in 2 and 3 and apical spot in 6.

moestissima coulteri, WM and DeN. (52-60). The Large-banded Awl. Cachar. VR. (races appear to be *palinda*, Swin, Java, Nias and probably Sumatra: *minsona* = *mimosa*, Swin, Borneo; *pathana*, Fruh, Philippines; *moestissima*, Mab, Celebes; ? *boisduvali*, Fd, Moluccas; *postfasciata*, Roth, New Guinea and *haslia*, Swin, Australia and Dampier).

10 (9). Unh dark brown with a strong violet wash, no white band. ♂ above unmarked; ♀ ?

leucospila parnia, Fruh. (48-56). The Violet Awl. S. Burma. Malay Peninsular, Nicobars, Sumatra, Java, Borneo. VR. (*matisca*, Fruh, Philippines; *leucospila*, Mab, Celebes; *violacea*, Elwes, Mouccas).

(*thridas*, BdV. = *ribbei*, Pl, *apara*, Fr, and *chalybeata*, Joicey and Talbot, Moluccas, Waigou, Obi, belongs to this group).

11a (9b). ♂ brand is a continuous seam.

Alexis Group.

11b (14). Uph no yellow band.

11 (12a). Unh no pale band; dark ochreous brown with a faint purple wash, centrally darker; obscure pale spot end cell and over tornal lobe. ♀ upf large pale yellow hyaline discal spots in cell, 2 and 3 and apical spots. Very like *badra*.

simplicissima lioneli, Fruh. (44-48). The Simple Awl. Dawnas to S. Burma. Malay Peninsular, Sumatra, Java and Borneo. R. (= *yanuna*, Fruh, Philippine race *mixta*, Mab = *prabha* and *cirta*, Fruh and *philetas* and *certhia*, Plotz. *fenestrata*, Fruh, Celebes. *simplicissima*, Mab, Moluccas).

12a (11). Unh with a prominent pale discal band.

12 (13). Unh discal band bluish or purple white, narrow, outwardly diffused; wing more or less glossed dull steely blue. ♀ upf prominent white discal spots in 2 and 3 and apical spot in 6 (rarely also in 7).

alexis alexis, Fab. (45-50). The Common-banded Awl. Ceylon, India, Burma, China and Siam to the Celebes. C. (= *chromus*, Cr and *ambasa*, M; *inermis*, Elwes, Liu Kiu Is. : *vairacana*, Fruh, Formosa; *canostigma*, Joicey and Talbot, Hainan are probably races. The race flying from the Moluccas to Australia, etc., should probably be called *khoda*, Mab = *ganapata*, Fruh; *attenuata*, Mab; *contempta*, Plotz; *lucescens*, Lucas; *bilunata* and *atrox*, But).

13 (12). Unh discal band sharply defined and pure white.

α. Unh base dull indigo blue and discal band very broad. Unf apex and unh margin clothed ochreous scales. ♀ upf small white spots in 2 and 3.

taminatus taminatus, Hub. (45-50). The White-banded Awl. Ceylon and S. India. C. (*chromus*, Auct and *butteri*, Aurivill).

β. As last but no ochreous scaling below and unh discal band narrower.

taminatus bharara, Fruh. Sikkim — N. Burma and W. China. NR.

γ. Unh steely blue from base up to the discal band, which is very narrow.

taminatus almea, Swin. S. Burma. Siam and Malay Peninsular to Borneo. NR.

δ. Unh brilliant metallic green; discal band narrow. ♀ spots upf may be absent or are very small.

Alexis Group—(contd.)

* *taminatus malayana*. Fd. Andamans and Nicobars. C. (Felder gives Malacca as the type locality, but his figure exactly represents the Andaman form).

(*padma*, Fruh = *galaca*, Fruh, Philippines. *attenuata*, Stg = *meala*, Swin, Celebes. *amboiensis*, Swin = *acakra*, *pramidha* and *dipama*, Fruh, Moluccas and Waigou).

14 (11b). Upf a broad yellow central band, cilia yellow. Upf conjoined yellow hyaline discal spots in 2, 3 and cell, and apical spots 6-8. Below similar, pale brown basally; unf more or less purple washed about apex.

* *schonherri schonherri*, Lat. (40-50). The Yellow-banded Awl. R. Assam to Burma, Malay Peninsular and islands to Borneo. (= *chuza*, Hew and *cridata*, Fruh. The Philippine race is *gentiana*, Fd = *saida*, Hew, with non-hyaline spots upf and the yellow band to the base upf).

(In this group are *celaenus*, Cr = *lugubris*, Bdv and *akshita*, Fruh, Moluccas to Australia and *hurama*, But = *vivapama* and *perplexa*, Fruh, *burgeri*, Ribbe and *dampierensis*, Roth, Celebes to Australia).

1. 2. **Ismene**. The Awlets. Mostly unmarked dark brown above and striped below. (Plate 30).

1a (3a). Unh no striping, veins not pale and no black spot at base 8. Cilia H orange, lengthened tornally. ♂ with a brand upf and v3 nearer 4 than 2.

Ilusca Group.

1 (2). ♂ brand upf broad, edges zigzag, consisting of long and short conjoined streaks. Above bases and most of H clothed orange red hairs. Upf white hyaline spots in 2 and 3 more prominent in ♀, may be absent in ♂. Unh slate.

* *mahintha*, M. (40-45). Assam to Burma. The Slate Awlet. NR.

2 (1). ♂ brand upf narrow. Above mostly orange yellow. Unh narrow pale purple white discal band, extending to F.

nestor, Mosch. (45-50). The Banded Awlet. Java, Flores. R. (= *firdusi*, Pl; *ionis*, DeN; *atrinotata*, Mab; *rubrocincta*, Mab; *antigone*, Rob; *zonaras*, Fruh). (Belonging to the group—*aquilina*, Spey = *janskowskii*, Ob and *chrysaeglia*, But, Japan and N. China—*ilusca*, Hew, Celebes).

3a (1a). Unh more or less striped and a prominent black spot at base 8.

3b (10a). Unh striping orange or purple. H cilia orange.

Oedipodea Group.

3c (7a). ♂ upf with a brand and v3 bent down to near v2.

3d (6). ♂ brand consists of black modified scales. ♂ upf basal costal orange streak and unf broadly paler.

3e (5). ♂ brand basal, against mv from v1 to v4; large and prominent; v1 distorted.

3 (4). About 48 mm. expanse.

α. ♂ H v8 somewhat distorted and costa white; v6 bowed. Unh more or less orange striped; somewhat prominent orange discal patch beyond cell F and H. No blue hairs on thorax above.

oedipodea ataphus, Watson. (40-50). The Branded Orange Awlet. Ceylon. NR.

β. ♂ H v8 not distorted and v6 only slightly bowed. Unh dorsum more orange. Blue hairs on thorax above.

oedipodea aegina, Plotz. Mussoorie to N. Burma. S.W. China. NR.

γ. ♂ H v6 not distorted and v6 straight. Unf orange discal areas replaced by greenish. Unh pale purplish edged greenish streaks on a pale greenish brown ground.

oedipodea tuckeri, Elwes. Tavoy. VR (? unique).

δ. ♂ H v8 distorted and apex folded over, v6 acutely bowed towards v4. Above prominent blue hairs on thorax and in cell upf. Below orange areas prominent and dorsum H broadly orange.

oedipodea oedipodea, Swainson. Probably S. Burma. Peninsular Siam, Malay Peninsular and Islands to Philippines. NR. (= *consobrina*, Pl and *belesis*, Mab; *athena*, Fruh is Tonkin race).

4 (3). Expanse 58-66 mm. No blue hairs on thorax. ♂ H v8 not distorted and v6 straight; costa upf brown. Below no orange, pale purple discal patches and streaks between veins H.

Oedipodea Group—(contd.)

oedipus, Elwes. The Large Branded Orange Awlet. Perak (F.M.S. Mus). Sula Islands. VR.

5 (3e). ♂ upf brand central from mid v1 to base v4; variable and may be divided into spots; rather obscure and never so dark. Above ♂ plain; ♀ with bluish hairs at base and thorax.

a. ♂ brand restricted to 2 patches on v2 and base v3. Above ♂ prominent basal costal streak on F. Below narrow orange striping, more intense mid disc beyond cells.

jaina tergusonii, DeN. (60-70). The Orange Awlet. S. India to N. Kanara. NR.

β. ♂ brand as in last. ♂ upf basal costal orange streak obscure. unf prominent white spot in cell and a series of dull purple white spots 4-8; rather obscure in ♂.

jaina jaina, M. Mussoorie to Sikkim. NR.

γ. ♂ brand a square patch from just above v1 to v3. As last, but larger and darker.

* *jaina vasundhara*, Fruh. Assam to Karens. NR.

δ. ♂ brand more extensive. Below spots on F more obscure. Upf orange striping more prominent and unh striping purple rather than orange.

jaina margana, Fruh. Dawnas. Siam. R.

(*formosana*, Fruh is the Formosa race).

6 (3d). ♂ upf brand replaced by a dense patch of shining recumbent hairs over lower part of disc from sev to v1. Upf basal costal orange streak prominent. Below striping and pale patches beyond cells pale purple; unf obscure spot in cell.

phul, Mab. (60-65). The Plush Awlet. Perak, Borneo, Philippines and Celebes. VR. (= *tolo*, Pl and *excellens*, Hopf).

7a (3c). ♂ no brand.

7 (8a). ♂ F v3 bent down close to v2. Palpi below grey and orange at sides. Below more or less violet washed and H obscurely striped orange. ♂ upf prominent basal orange costal streak.

anadi, DeN. (50-55). The Plain Orange Awlet. Mussoorie to Karens. Siam. VR.

8a (7). ♂ F v3 nearer v4 than v2 as in all ♀♀.

8 (9). F v4 much nearer v5 than 3, which is opposite v11. ♂ upf very obscure basal orange costal streak; ♀ broadly blue at bases. Below very prominent orange striping and large orange patches beyond cells and at base H.

etelka, Hew. (65-75). The Great Orange Awlet. Karens to S. Burma. Malay Peninsular and Islands (except Java) to Borneo. R.

9 (8). F v4 mid vs 5 and 3, which is opposite v10. ♂ above rather pale brown, lighter below v3 F and costal orange streak obscure; uph costa to v7 white, extending in centre of space 6 to v6. ♀ dark brown, bases and thorax clothed blue hairs. Below evenly orange striped with streaky orange patches beyond cells.

harisa harisa, M. (45-55). The Orange-striped Awlet. Sikkim to Burma. Andamans. C. (Races are—*purpurea*, Riley and Godfrey, E. Siam—*asambha*, Fruh, Tonkin.—*moncada*, Fruh = *distanti*, Swin MS, Malay Peninsular.—*crinatha*, Fruh, Java, Sumatra and Borneo.—*neasana*, Swin, Nias.—*imperialis* Plotz, Celebes). (To the group belong *lysima*, Swin, Ké Is.—*lusca*, Swin, Celebes).

10a (3b). Unh striping green and black, very prominent.

Vasutana Group.

10b (12a). H cilia orange. Below green with narrow black stripes between each vein and veins black.

10 (11). ♂ upf prominent separate brands along vs 1, 2, mv and 3; v3 close to v2. Above dark brown, clothed yellow hairs. Unf no spots.

striata, Hew. (55-65). The Branded Green Awlet. R. W. China (= *septentrionis*, Fd).

11 (10). ♂ no brand and v3 near v4; dark brown, uph clothed orange hairs. ♀ above base and thorax clothed blue hairs. Unf small hyaline or semi-hyaline white spots in 2 and 3.

Vasutana Group—(contd.)

vasutana, M. (55-65). The Green Awlet. Kumaon to N. Burma (= *rahita*, Fruh).

12a (10b). H cilia whitish grey. Below black, veins green and a green stripe between each vein.

12 (13). ♂ upf rather obscure brands along vs 1, 2 and 3; v3 near v2. Above ♂ prominent orange costal streak F, more obscure in ♀. Below uniform, stripes bluish green.

amara, M. (45-55). The Small Green Awlet. Sikkim—S. Shan States, Andamans. (= *pindapatra*, Fruh). NR.

13 (12). ♂ upf no brand and v3 close to v4. ♂ above rather pale brown with pale yellowish streaks between veins and uph costa broadly pale as in *harisa*. ♀ purple brown, base F and nearly all H green. Below paler, striped pale green; unh broad pale streak from base through cell to termen.

α. ♂ above pale striping much more developed; ♀ pale diffuse spots upf in 2 and 3. Smaller.

gomata kanara, nov. (50-55). The Pale Green Awlet. N. Kanara, S. India. R.

β. Larger and darker.

* *gomata gomata*, M. (60-65). Sikkim to Assam. R.

(Races are—*lara*, Leech, China.—*latita*, Fruh, Malay Peninsular, Sumatra, Borneo.—*vajra*, Fruh, Java.—*torquini*, Mab = *mindorana*, Fruh, Philippines.—*radiosa*, Pl, Celebes).

(*hemixanthus*, Roth, New Guinea, belongs to this group).

I. 3. Bibasis. The Orange-tail Awl. (Plate 30).

Above unmarked. Cilia H and end abdomen orange. Unf large white central patch above mid dorsum. Unh broad white discal band with diffused edges.

* *sena sena*, M. (45-50). Ceylon. S. India. Mussoorie to Burma. Andamans. Siam and Malay Peninsular. NR. (races are—*uniformis*, El, Sumatra, Java, Borneo, Bawean and Lombok—*sumbawana* El, Sumbawa—*palawana*, Stg = *vairavana*, Fruh, Philippines and doubtfully Celebes).

I. 5. Rhopalocampta. The Awlking. (Plate 30).

Above bluish purple brown, more or less overlaid basally with dark greenish hairs (bluish in ♀). Below green with narrow black veins. H tornus and cilia orange.

α. Uph tornal end dorsum and cilia orange. Unh tornus black broadly and irregularly surrounded orange.

* *benjaminii*, *benjaminii*, Guer (50-55). Ceylon. S. India. Simla to Karens. China. NR. (= *xanthropogon*, Koll. Allied races are *japonica*, Murray, Japan — *formosana*, Fruh, Formosa. The genitalia of the Ceylon form are distinct and 3 very distinct types of genitalia are to be found in Assam; in Mussoorie and again in Java the larva has been found to be dimorphic).

β. Lemon yellow at tornus instead of orange and the yellow area uph and unh much more extensive.

benjaminii crawfordi, Dist. S. Burma, Malay Peninsular, Sumatra, Nias, Borneo. (*subcaudata*, Fd. with the tornal yellow still more extensive is the race in Java, Bali and Banka. In the Celebes *benjaminii* is replaced by *plateni*, Stg = *renidens*, Man with race *adhara*, Fruh in the Philippines. *iluensis*, Ribbe occurs in the Moluccas with race *ornatus*, Roth in New Guinea).

I. 6. Badamia. The Brown Awl. (Plate 30).

Above dark brown, bases prominently paler. Upf ♂ with whitish hyaline spots in cell 2 and 3; in ♀ spots are larger, spot in 2 is conjoined to cell spot and there is a small spot in 1 against v1. Below pale brown, tornus H dark brown, crowned by a whitish spot.

* *exclamationis*. Fab. (50-55). All India and China to Australia. Ceylon, Andamans and Nicobars. C. (= *ericus*. F; *thynbron*, Fd; *ladon*, Cr; *forulus*, Hub).

I. 10. Orthopaetus. The Dawnflies. (Referring to their habit of flying at dawn). (Plate 30).

I. 10. *Orthopaetus*—(contd.)

Large ferruginous brown insects. Upf prominent white hyaline spots in cell 2 and 3 and more or less prominent apical spots. Uph a discal row of dark spots.

1 (2a). Upf discal spots large, black, yellow ringed. Above fulvous brown. ♂ upf with a costal fold.

lidderdali, Elwes, (65). Lidderdale's Dawnfly. Bhutan. VR (? unique). (Race *melli*, Hering, Tsha-jiu-san, China).

2a (1). Upf discal spots small and a dark spot end cell; in ♀ some of the spots may be hyaline white. Upf apical spots obscure and dark in the ♂; prominent and hyaline in ♀.

2 (3). ♂ with costal fold upf. ♂ above fulvous brown; ♀ dark ferruginous brown.

**lalita*, Doh, The Fulvous Dawnfly. Lushai, Assam to Burma, Siam, R.

3 (2). ♂ no costal fold. Above rich dark fulvous brown.

phanaeus, Hew, (60-65). The Dark Fulvous Dawnfly. R. Malay Peninsular, Sumatra, Borneo and very probably S. Burma.

I. 11. *Capila*. The Striped Dawnflies. (Plate 30.)

Large dark brown insects, more or less striped in the ♂ and with a white band upf in ♀, usually.

1 (2a). Upf prominent hyaline white spots in cell, 2 and 3; small spot in 1 just below spot in 2; prominent apical spots in 6-8. Above olive brown. Uph obscure black veins and spots in 2 and 3. H square, angled at apex and v3.

omeia, Leech, (60). The Olive Dawnfly. W. China R.

2a (1). Upf at most a single spot in ♂ and ♀ with a continuous hyaline white band; no apical spots.

2 (3a) ♂ upf single large hyaline white spot end cell; bases and thorax fulvous; apex F produced and outer margin straight. ♀ upf an irregular white band from mid costa to tornus, as in *zennara*, but inner edge of spot in 2 very irregular and reaches to inner edge of spot in 3; purple basal suffusion. Antennæ longer than usual.

**mackwoodi*, Evans (70). Mackwood's Dawnfly. N. Shan States to Karens. S. E. Siam. (= *barroni*, Riley and Godfrey). VR.

3a (2). ♂ upf no hyaline spot.

3a (5). ♂ above uniform dark brown, with prominent pale stripes between veins.

3 (4). ♂ above uniform, rather pale brown, head, etc., dark brown; termen convex. ♀ upf discal band very irregular; uph no pale stripes.

zennara, M. (65-80). Sikkim. VR. The Pale Striped Dawnfly. (Race *hainana*, Crowley, Hainan).

4 (3). ♂ above base, head and thorax orange. ♀ upf central white band regular with parallel edges; uph dull pale stripes outwardly. ♂ apex F produced and margin straight.

**jayadeva*, M. (65-75). The Striped Dawnfly. Sikkim to Assam, R. (Race *pussa*, Hering, China; only ♀ described and is likely to prove to be the ♀ of *translucida*).

5 (3a). ♂ above olive brown, discs broadly pale with black veins; margin and base broadly dark.

translucida, Leech, (68). The Chinese Dawnfly. VR. W, China.

I. 12. *Crossiura*. The Fringed Dawnfly.

♂♀ above very dark brown; upf shining white hyaline band from scv across cell to 1 with small spot beyond; in ♀ band is continuous from costa to dorsum at tornus; 5 small apical spots from 4-8. Uph in ♀ a discal series of small dark spots, with diffuse fulvous rings.

pennicillatum, DeN. (60-70). Khasi Hills. VR. (races—*kiyila*, Fruh, C. China—*insularis*, Joicey and Talbot, Hainan).

I. 13. *Calliana*. The White Dawnfly. (Plate 30.)

♂ above white; upf with broad dark brown apex and dark marginal spots in 2 and 3; uph with one or more black discal spots showing from below. Unf basal $\frac{2}{3}$ cell and costa dark brown and a similar patch beyond cell; apex as above but dark brown to tornus; uph a discal series of large black spots, also a spot end cell and at bases 1 and 8. ♀ quite different; above dark brown

I. 13. Calliana.—(contd.)

with upf a very large hyaline white spot end cell, continued as a non-hyaline spot to the costa, also large hyaline discal spots in 2 and 3; uph with small black discal spots; unh black spots as in ♂.

* *pieridoides*, M. (60-70). Assam. Dawnas. W. China. R. (race *adamsi*, nov; larger, more heavily marked and the cell upf black dusted, Borneo—3 ♂ in Adams collection, B.M.—1 ♂ Selangor Pahang border, 'The Gap.' F. M. S. Mus).

I. 15. Charmion. The Velvet Flat. (Plate 30).

♂ above velvet black; ♀ browner. Upf broad white hyaline band with bluish reflections from v2 to sev; at end cell in ♂ band is constricted at upper end, in ♀ even, but nicked at v4. Palpi brown below, orange at sides. Antennæ plain black.

* *ficulnea*, Hew. (45-50). S. Burma, Malay Peninsular, Siam, Sumatra, Borneo NR. (= *signata*, Druce; *leucographa*, Pl; *queda*, Pl. Races are—*niasica*, Mab = *ovalis*, Mab, Nias—*tola*, Hew = *zawi*, Pl and *pleisoneura*, Stg, Celebes. Not recorded from Java or Philippines).

I. 16. Celaenorhinus. The Flats. (Plate 30).

Above dark brown. Upf with a hyaline white or yellow discal band from sev at end cell to at least v2, composed of conjoined or detached spots; also usually 5 apical spots in 4-8. Uph and unh often with non-hyaline yellow spots. (♂ of *spilothyrus* is aberrant, having no discal markings upf).

1a (21a). Upf hyaline spots not coalesced spot in 3 not reaching base 3 (except individuals of *munda* and *saturatus*). Uph and unh usually with orange spots and cilia prominently chequered. Upf hyaline spots white, except *saturatus* and *snelleni*.

1b (4a). Unf 4 outer spots in 1, the outer two being distinct non-hyaline white spots. Antennæ white banded below club. Uph yellow spots small.

Ambareesa Group.

1c (3). Upf and unf prominent spot in 1 before middle. Cilia F chequered.

1 (2). Uph basal spots and spot end cell obscure and dusky; discal spots small and usually prominent. Upf cell spot continued to costa.

ambareesa, M. (45-55). The Malabar Flat. S. India—Bengal. NR.

? (1). Uph spot end cell large and prominent, other spots small. Upf cell spot not continued to costa.

consanguinea, Leech. (43-47). The Mupin Flat. W. China. R. (race *ratna*, Fruh, Formosa).

3 (1c). Upf there may be a minute spot before middle in 1, but it is not reproduced unf. Uph spot end cell and discal spots prominent.

pyrrha, DeN. (45-55). The double spotted flat. Bhutan and Kumaon to N. Burma. NR.

4a (1b). Unf only 2 or fewer outer spots in 1, but there may be some white suffusion between these spots and the margin. Upf cilia not chequered.

4b (9a). Upf and unf a pale spot before the middle in 1. (May be present in individuals of *munda*).

Pulomaya Group.

4c (7a). Unh no yellow basal streaks.

4 (5a). Antennæ shaft white above in the ♂. Cilia H pale yellow, unchequered. Upf spots small and few.

pero, DeN. (50-60). The Mussoorie Spotted Flat. Mussoorie to N. Burma. R.

5a (4). Antennæ ♂ ♀ white banded below club. Cilia H prominently chequered. Uph spots large and numerous.

5 (6). Upf central and lower discal spot in 1 small and rounded. Palpi yellow and brown below. Apex F produced. Apex of tegumen undivided, but surmounted by 2 long curve spines; clasp undivided.

* *pulomaya*, M. (45-50). The Multi-spotted Flat. Kangra to Nagas. W. China. NR. (= *pila*, Tytler and *lucifera*, Leech).

6 (5). Upf central and lower discal spot in 1 large, yellow, irregular, as rge as the upper discal spot in 1. Palpi yellow below. Apex F rounded,

Pulomaya Group—(contd.)

termen convex. Tegumen divided at apex into 2 broad points. no spines; clasp divided.

tylleri, nov. (45-50). Tytler's Multi-spotted Flat. Mussoorie to Manipur. R. 7a (4c). Unh with basal yellow streaks. Uph spots prominent.

7 (8). Unh double spot mid cell. Antennæ white banded below club. Uph spots prominent.

maculosa, Fd. (45-50). The Streaked Flat. C and W. China, Szechuan. C. 8 (7). Unh single spot mid cell. ♂ Antennæ whitish in front. Apex F produced. Larger.

aspersa, Leech. (60). The Large-streaked Flat. Nagas. Chia-kou-Ho, China. VR. (= *clitus*, DeN).

9a (4b). Upf and unf no spot before the middle of 1 (except individuals of *munda*); in *flavocincta* there is a dark spot.

9b (13a). Uph postdiscal spots large and prominent; spots in 2, 3 and 6 always larger than those in 1, 4 and 5.

Sumitra Group.

9 (10a). Above bases ochreous brown and unh except for the brown margin entirely orange with large brown spots. Antennæ shaft white above in ♂.

flavocincta, DeN. (70). The Bhutan Flat. Bhutan. VR.

10a (9). Above and below uniform dark brown.

10 (11a). Unf cell spot not produced to costa. Antennæ Shaft white above in ♂. Uph cilia broad orange, only faintly brown at ends veins. Upf 1 or 2 spots in 1, spot in 3 minute or absent.

* *patula*, DeN (55-65). The Large-spotted Flat. Bhutan, Sikkim to Nagas. R.

11a (10). Unf cell spot to costa. Uph cilia prominently chequered.

11 (12). Uph only a faint spot end cell and postdiscal series of spots; unh no basal spots. Antennæ shaft white above in ♂. Upf single spot in 1.

sumitra, M. (60-65). Moore's Spotted Flat. Sikkim to Assam. VR.

12 (11). Uph prominent spot and cell end unh with prominent basal spots. Upf 2 spots in 1. Antennæ white banded below club and shaft white chequered.

plagifera, DeN. (50-60). DeNiceville's Spotted Flat. Sikkim to Assam W. China. NR. (= *pluscula*, Leech).

13a (9b). Uph orange spots small or absent.

13b (18a). Upf spot in 2 extends well behind origin of v3; its inner edge well behind centre of cell spot.

Leucocera Group.

13c (15a). Antennæ club white above and in ♂ shaft as well; ♀ shaft plain, not chequered. Uph usually at least traces of a spot end cell.

13 (14). Apex F not produced; termen not so long as dorsum.

α. Uph cilia chequered pale yellow and brown; postdiscal spots prominent or absent. Upf spot in 3 quadrate, linear or absent; 1 or 2 spots in 2; cell spot may or may not be prolonged to costa. Very variable, but it seems impossible to define local races.

leucocera leucocera, Koll. (45-55). The Common Spotted Flat. S. India to Bengal. Murree to Burma. Peninsular Siam and Malay Peninsular. C. (= *leucocirca*, El and *putra*, M).

β. Uph cilia chequered bright orange and brown; postdiscal spots prominent bright orange.

leucocera chinensis, Swin. W. China. (This is Leech's *sumitra* and is very like *plagifera*, but the antennæ and genitalia are quite different.

γ. Above very black. Cilia H entirely dark brown. Upf apical spots small and separate, no spots in 4 and 5 or 3, nor does cell spot extend to costa; only one spot in 1. Uph unmarked. Variable.

leucocera brahmaputra, El. Sumatra, Java, Bali and Borneo.

14 (13). Apex F produced; termen = dorsum. ♂ upf spots reduced, no spot in 1 (♀ 2). Uph cilia unchequered (in ♀ faintly chequered) yellow. Antennæ the club only is white in the ♂; in ♀ also upper half of shaft.

simula, Hew. (55-60). The Narrow Spotted Flat. Sumatra and Java. (= *angustipennis*, El and *binotatus*, Fruh).

Leucocera Group—(contd.)

15a (13c). Antennæ lower part of club white or yellow, shaft white spotted^d inside. Upf unmarked.

15b (17). Upf spots white. Cilia very prominently chequered pale yellow and brown.

15 (16). Upf spot in 3 conjoined to spot in 2 and to cell spot, usually filling base of cell 3, but may leave a tiny brown triangular spot. Upf apical spots conjoined, 2 equal spots in 1 conjoined upf. Unh only yellow bar end cell. Upf cell spot extends to costa.

munda, M. (45-50). The Himalayan Spotted Flat. Murree to Sikkim. S. Shan States. NR.

16 (15). Upf and unh spot in 3 detached; apical spots separate. Unf lower spot in 1 narrow, vertical, quite separate from lower spot. Unh small yellow spots.

maculicornis, El (45-50). Elwes' Spotted Flat. Assam to Manipur. Siam. (= *vitruvius*, Fruh; race *formosanus*, Fruh, Formosa). R.

17 (15b). Upf spots deep yellow and spot in 3 conjoined as in *munda*. Above clothed dark ochreous hairs. Unh obscure suffused ochreous spots. Cilia dark brown.

saturatus, El. (45-50). The Yellow-spotted Flat. Java, Bali, C.

18a (13b). Upf. spot in 3 does not extend behind origin of vein 3, its inner edge under centre of cell spot; costal spot above cell spot usually yellow. Upf usually large obscure dark spots and unh small diffused orange spots. Unf pale diffused patch in 1 between discal spots and termen.

Spilothyrus Group.

18 (19a). Upf cilia plain dark brown, Antennæ plain, ochreous under club. ♀ with normal spotting; upf 2 spots in 1. ♂ abnormal; above velvet black; upf unspotted or at most 3 golden apical spots and a small upper spot in cell under origin of vll with a spot on the costa above it and a small conjoined outer spot below it.

spilothyrus, Fd. (40-50). The Black Flat. Ceylon. (= *infernus*, Fd.) C.

19a (18). Upf cilia chequered. Upf at most upper spot in 1.

19 (20). Antennæ club white and shaft white spotted.

α. Upf obscure large black spots; unh obscure small orange spots.

ruficornis area, Plotz. (45-50). The Tamil Spotted Flat. S. India to Bengal. NR. (= *fusca*, Hampson).

β. Much blacker. Upf and unh plain except for yellow bar end cell unh.

ruficornis ruficornis, Mab. Java. Celebes. (= *piepersi*, Fruh).

20 (19). Antennæ base club white above and shaft whitish in ♂, no white spotting. Upf spot in 2 large and outwardly more oblique than usual, lower outer edge midway between termen and inner edge. Upf markings pale yellow in ♂, white in ♀. Upf large dark diffused spots and unh small diffused yellow spots. Upf apical spots in line and coalesced.

α. Upf with spots in 4, 5 and upper dot in 1.

snelleni sema, nov. (45). Java. R.

β. Upf spots in 4, 5 and 1 absent.

snelleni snelleni, Fruh. Celebes. (= ? *trimaculata*, Roth, Dampier).

21a (1b). Upf discal band compact and confluent, spot in 3 always to base cell 3.

21b (25a). Upf discal band white or (*tibetana*) very pale yellow.

Tibetana Group.

21 (22a). Upf discal band does not extend into 1 and only in ♀ to costa; rarely a spot in 4 and never in 5. Upf obscure large dark spots in ♂. Unf diffused tornal patch. Unh plain. Cilia and antennæ plain, dark.

α. ♂ unf very narrow costal spot over cell spot; paler. ♀ pale brown and upf cell spot extends to costa.

asmara consertus, DeN (35-45). The White-banded Flat. Assam to Karens. NR.

β. Similar but apex F produced.

asmara cacus, DeN. Rangoon. NR.

γ. ♂ unf costal spot prolonged full width to costa. ♀ upf cell spot not extended to costa. Darker.

Tibetana Group—(contd.)

* *asmara asmara*, But. S. Burma, Malay Peninsular, Borneo. NR. (Races of rather doubtful value are—*golo*, Mab, 'Japan' or more probably Liu Kiu Islands or S. China—*aditta*, Fruh, Siam—*ayata*, Fruh Sumatra,—*milinda*, Fruh, Java—*palajava*, Stg, Philippines).

22a (21). Upf discal band always extending into 1.

22 (23a). Upf discal band not extending to costa above cell; narrow, reaches v1; apical spots 4, 5, 6-8 prominent. H cilia uniform yellow white. Unf no subternal pale patch. Unh yellow bar end cell. Antennæ white banded below club.

badia, Hew. (55-60). The Scarce Banded Flat. Sikkim to Assam. VR.

23a (22). Upf discal band extending to costa. Antennæ club whitish below. H. cilia always more or less chequered white and brown, especially at apex.

23 (24). Upf discal band pale yellow and extended to v1; usually spots in 4 and 5. Unf no subternal pale patch. Unh unmarked.

tibetana, Mab. (45-55). The Thibet Flat. W. China. Mishmi Hills. Mt. Victoria, S. Chin Hills. (Race *latifascia*, Mab, Yunnan, band much wider). R.

24 (23). Upf discal band white, not reaching v1, only a small upper spot in 1 against outer edge of spot in 2; lower apical spot in 6 out of line, detached and nearer termen. Unf prominent subternal pale patch. Unh obscure small pale yellow spots.

α. Upf discal band narrow, spot in 3 projects beyond band.

nigricans nigricans, DeN. (40-45). The Small-banded Flat. Sikkim to S. Burma. Malay Peninsular. W. Siam. NR.

β. Upf discal band very wide, spot in 3 not projecting. H cilia with only traces of white about apex. Darker.

nigricans balukinus, El. Borneo. (= *anoma*, Fruh; *orbiferus*, El, apparently an aberration towards *nigricans*).

25a (21b). Upf discal band bright yellow or orange. Antennæ more or less ochreous below club.

Dhanada Group.

25 (26a). Upf discal band less oblique, inner edge directed to dorsum before tornus; lower inner edge of spot in 2 immediately under origin v3, which is at about middle of cell spot. Antennæ always chequered at base. Upf discal band irregular, from costa to mid 1, costal spot non-hyaline; spot in 1 triangular, against outer half of spot in 2; apical spots 6-8 prominent, rarely spots in 4 and 5. Uph obscure large dark spots. Unf suffused subternal patch, usually conjoined to hyaline spot in 1. Unh traces of small yellow spots, especially end cell and in 1 and 2.

α. Band rather pale golden yellow. Upf no lower spot in 1. H cilia prominently chequered.

dhanada dhanada, M. (40-45). The Himalayan Yellow-banded Flat. Mussorie to Assam. R.

β. Band rather darker. Upf always lower outer ternal non-hyaline spot in 1, conjoined to the hyaline spot. Cilia at least more or less chequered at apex H.

dhanada affinis, Elwes. Assam to Burma. NR. (= *zea*, Swin, an aberration from Assam with upf the apical spots irregular and the spot in 1 against the middle of the spot in 2).

γ. As *affinis*, but much smaller and upf no non-hyaline spot in 1.

dhanada andamanica, WM and DeN. (35-40). Andamans. R.

δ. Band orange, much wider. Upf there may be a small diffused non-hyaline lower spot in 1, but not conjoined to the hyaline spot; the upper spot in 1 has a more or less prominent tooth on its inner lower edge. Cilia dark brown, not chequered.

η. *dhanada dentatus*, El. (40-45). Borneo (= *lativittus*, El.).

26a (25). Upf discal band more oblique and inner edge directed to tornus; lower inner edge of spot in 2 well forward of origin of v3, which is well behind centre of cell spot. Cilia unchequered. Upf discal band extends to the tornus from the costa. Antennæ and cilia plain.

26 (27a). Upf portion of band in 1 and at costa non-hyaline.

α. Band golden, non-hyaline portions orange; apical spots prominent; inner edge spot in 1 against middle of spot in 2. Uph and unh a more or less prominent pale spot end cell.

Dhanada Group—(contd.)

* *aurivittata aurivittata*, M. (40-45). The Dark Yellow-banded Flat. Assam to Mergui. NR.

β. Band orange throughout. Smaller.

aurivittata cameroni, Dist. (35-40). S. Mergui, Malay Peninsular. Sumatra. R.

γ. Apical spots minute or absent; inner spots 1 and 2 upf in line. Uph and unh plain.

aurivittata vimana, Fruh. Borneo.

27a (26). Band hyaline throughout. Uph plain.

27 (28). Upf band very irregular, not extending to end cell, spot in 1 against outer half of spot in 2.

inaequalis, El. (45-50). The unequal banded Flat. Java, Sumatra, Borneo. (= *sumatranus*, Mab).

28 (27). Band very broad and regular, extending well beyond end cell; inner edge straight, outer edge posteriorly curved. No apical spots.

ladana, But. (45-50). The Broad-banded Flat. Borneo, Perak.

(*crona*, Hew and *batchianus*, El from Batchian in the Moluccas belong to this group. *editus*, Plotz=*stotharti*. Roth, from New Guinea and Aru constitutes a group by itself. I have been unable to place the following—*mahala*, Fruh, loc? — *clio*, Mab, Formosa—*kiku*, Hering, China.

I. 18. Achalarus. The Marbled Flats. (Plate 30).

Above dark brown with white or yellow hyaline discal spots upf in 1, 2, 3, end cell and costa; apical spots in 4, 5, 6-8. Unf apex and all unh grey powdered in patches, leaving more or less obscure irregular large dark spots.

1a (3a). Upf hyaline spot in 3 touching spot in 2.

1 (2). Palpi black below. Antennæ and cilia not chequered. Upf apical spots 6-8 coalesced.

simplex, Leech. (46). The Black Marbled Flat. W. China. (= *gener*, Ob).

2 (1). Palpi grey below.

α. Paler brown. Apex F less produced and termen convex. Spots white. *bifasciatus casyapa*, M. (45-55). The Marbled Flat. Kashmir to Kumaon. R.

β. Darker. Upf band much broader and yellowish.

* *bifasciatus liliana*, Atk. Assam to Karens. Yunnan. C.

γ. Still darker. Bands quite yellow; spots in 4 and 5 faint.

bifasciatus aborica. Tyt. Abor Hills. VR.

δ. Upf spot in 3 not to base 3 as in Indian races.

bifasciatus bifasciatus, Br. and Gr. N. C. and W. China. (*contractus*, Leech Washan and Wa-asu-kow, spots smaller).

3a (1a). Upf spot in 3 quite detached from spot in 2.

3b (5). Upf apical spots 4-8 not conjoined in a curve.

3 (4). Unh black spots prominent and detached. H more rounded than in rest.

proximus, Leech. (45). The Grey Marbled Flat. W. China. (= *frater*, Ob, Yunnan).

4 (3). Unh black spots obscure and coalesced.

nepos, Ob. (47). The Dusky Marbled Flat. W. China.

5 (3b). Upf apical spots 4-8 conjoined on a curve. Unh black spots more distinct than usual.

germanus, Ob. (48). The Curved Marbled Flat. W. China.

I. 19. Satarupa. The White Flats. (Plate 30).

Dark brown with hyaline spots on F and uph a broad white discal area outwardly bordered by black spots.

(12). Palpi below yellow. Upf spot in cell (may be reduced to a small upper spot) 2 spots in 1, large spots in 2 and 3, dots towards margin in 4 and 5 (may be absent), prominent apical spots in 6-8. Uph cilia white chequered. Abdomen white, black tipped.

α. Upf. no whitish scaling at margin near tornus. Uph white area narrow, $\frac{1}{2}$ wing black; discal spots coalesced to a broad band and only separated from the broad sub-marginal dark band by a shadowy bluish line. Unh detached spots in 6 and outer and inner spots in 7.

I. 19. *Satarupa*—(contd.)

gopala nymphalis, Speyer. (65-70). The Large White Flat. Amur—W. China.

β. Upf usually with whitish submarginal scaling most prominent as a streak on dorsum under spot in 1 and 2 spots in 1. Uph $\frac{2}{3}$ white, postdiscal series of detached black spots separated from the submarginal band by a bluish band. Unf 2 prominent spots in 1 exterior to the discal spots and traces of submarginal spots towards the apex. Unh usually an inner spot in 7, mid 7. Varieties are not infrequent, which show a transition to *nymphalis* on uph and unf the submarginal spots may be replaced by a bluish band.

* *gopala gopala*, M. Sikkim to N. Burma. NR. (*zulla* and *splendens*. Tyt, Nagas are aberrations. Possibly good races are *tonkiniana* and *majasra*, Fruh, Tonkin and Formosa respectively).

2 (1). Palpi white below. Upf no spot in cell; usually single spot in 1 and a spot in 2 just above it, prominent spots in 4 and 5 directed to apex, curved row of apical dots in 5, 6, 7 and sometimes a dot above in 8.

α. Abdomen above white with brown tip. Paler. Upf discal spots large and a broad white streak on dorsum under spot in 1. Uph white area broad, $\frac{2}{3}$ wing, black postdiscal spots prominent, against a narrow submarginal band, cilia white chequered. Unh inner spot in 7 near base, outer spot in 7 nearer spot in 6; base bluish. Clasp with single lower spine, top flat with an upper spine.

sambara dohertyi, Wat. (40-50). The White Flat. Mussoorie to Kumaon. NR.

β. Abdomen above inner $\frac{1}{2}$ white, outer $\frac{1}{2}$ black. Darker. Upf discal spots smaller and only traces of the dorsal streak. Uph $\frac{1}{2}$ white, black spots discal and merged with the very broad dark border. Unh base brownish, spots prominent, outer spot in 7 mid spot in 6 and inner spot in 7. Clasp with 2 lower spines; top pointed and long.

sambara sambara, M. Sikkim to Assam. NR. (= *cosima*, Pl, and *indosinica* Fruh, Tonkin).

γ. Abdomen brown with narrow white rings. Upf as *sambara*; uph and unh as *dohertyi*, but the black post discal spots lie more on the dark margin and base unh is white. Clasp? Larger.

sambara strigata nov. Karens, Dawnas. VR. (fig. in Lep Iud as *kirmana*).

δ. Abdomen brown. Dark. Upf spots small, spot in 1 as 2 dots, spots in 3 and 4 more detached from spot in 2. Uph white area = $\frac{1}{2}$ wing, black spots on the dark margin and are postdiscal as in *dohertyi* and *strigata*. Unh with blue basal suffusion and outer spot in 7 nearer spot in 6. Clasp with single lower spine as in *dohertyi*, but top is rather different.

sambara affinis, Druce. Malay Peninsular, Borneo. (= *kirmana*, Plotz and *cognata*, Dist. The above description applies to Malayan specimens; possibly the Bornean *affinis* is a different race).

η. Abdomen brown. Upf spots narrow and linear; apical spot in 8. Uph as *sambara*, but white area is broader and pure white. Unh outer spot in 7 mid spot in 6 and inner spot in 7. Clasp very like *sambara*.

sambara niphates, Weymer. Sumatra, Nias.

ζ. Abdomen brown. As *affinis*, but white area broader uph. Clasp with single lower and elongated upper spine.

sambara javanensis, Fruh, Java.

ε. Abdomen brown. Upf spots pale yellow, 2 spots in 1 and apical spot in 8. Uph entirely dark brown, faint traces of discal spots. Clasp as *dohertyi* but lower spine longer.

sambara formosana, Matsum. Formosa.

(This species presents an interesting study in variation and more material is required to decide whether there is more than one species).

I. 20. *Tagiades*. The White Flats. (Plate 30).

Normally dark brown with small hyaline spots F; uph plain or more usually with a white tornal area; unh mostly white.

1a (6a). Upf no hyaline spot in 11 over cell spot. The development of the white spots upf is very variable; the maximum is 2 (or single conjoined) spots in cell, discal spots in 2 and 3, very irregular apical dots in 4, 5, 6-8; the spots rest on a more or less obscure black Y-shaped band, rising from mid v1 and

I. 20. *Tagiades*—(contd.)

there is a black spot before the middle in 1. Uph more or less obscure black spots in 2, 3 (usually absent), double spot in 4-5 and spot in 6; unh these spots are repeated.

Atticus Group.

1 (2a). Uph no trace whatever of white or bluish suffusion on wing or cilia.

a. Comparatively large. Above rather pale brown, outwardly broadly paler; dark markings obscure; discal spots upf well developed, usually no cell spots or spots in 4 and 5. Unf usually with suffused bluish white area at tornus and a smaller area at apex. Unh suffused bluish white usually over the whole wing, except costa, but extent variable; discal black spots in 4-5 and 6 present or absent. Wings rather angular, but dorsum F is comparatively long.

atticus khasiana, M. (35-50). The Common Snow Flat. Central Prov to Bengal, Dun to Tavoy. Siam C (= *epicharmus*, Fr).

β. Smaller, darker, more uniform, dark markings prominent and hyaline spots on disc F smaller. Unh pale to dark brown, may be no trace of blue white suffusion or a good deal from base, black spots variable.

atticus atticus, F. Tavoy to Malay Peninsular. Pulocondor, Sumatra, Nias. C. (= *ravi*, M; *lugens*, Mab; *utanus*, Plotz; *yotissa*, Fruh. *ravi* was described from Bengal, but the B. M. type is marked Penang, whence it probably came).

γ. Above as *atticus*, but discal spots upf better developed. Unh typically (*helferi*) pure white except for broad brown costa and narrow termen, prominent spots in 4-5 and 6; but may be (*ravina*) plain brown.

atticus helferi, Fd. Andamans and Nicobars. NR. (= *ravina*, Fr).

δ. Large dark form with well-developed markings, below variable as *helferi*.

atticus rajaghra, Fruh. Borneo. (= *balana* Fr and *noctis*, El nom nud).

2a (1). Uph tornus or cilia white or at least some traces of blue white suffusion.

2b (5). Upf no spots in cell and usually no discal spots or spots in 4 and 5.

2 (3a). Unh white area at tornus unmarked on termen. Small. Uph narrow pure white tornal area.

lavata, But. (40-45). The Scarce Snow Flat. S. Burma to Malay Peninsular, Sumatra and Natuna. (*albovittata*, M, is the Bornean race). VR.

3a (2). Unh termen before tornus always with spots or a broad line.

3 (4). Uph broad pure white tornal area, bearing 2 or more large brown spots on termen. H distinctly excavated above v4. Apex F and tornus H produced.

a. Large. Uph white area broader, black spots thereon at end vs 4, 3, 2 (largest) and also in ♀ at v1. Upf hyaline spots only at apex in 6-8.

gana gana, M. (50-55). The Large Snow Flat. Sikkim to Karens, Cambodia. NR.

β. Rather smaller. Uph white area narrower and no dark spot at end of v4.

gana menanto, Plotz. Dawnas to S. Burma and Malay Peninsular, Sumatra, Nias, Java and Borneo. (= *elongata*, and *niasana*, Mab; *avala*, *jainas* and *parra*, Fruh). NR.

(Races are *elegans*, Mab = *karea*, Mab, *semperi* and *paceka*, Fr, Philippines; *kowaia*, Plotz = *bubasus*, Swin, New Guinea and Waigou).

4 (3). Uph usually with bluish white suffusion at tornus; may be reduced to a few scales at base of cilia, may be very broad, may be surmounted by a white band, or a narrow white band may be present and the blue scaling absent. A very variable species.

a. Uph narrow white band at tornus, prominently surmounted by bluish scaling, brown dots at ends vs 2, 3 and 4. Upf prominent discal spots in ♀, often traceable as dots in ♂ (usually absent in other races).

* *obscurus distans*, M. (45-50). The Suffused Snow Flat. Ceylon. NR.

β. Uph cilia about tornus normally white; blue suffusion obscure or prominent and may surmount a very narrow white band. Very variable in the Nilgiris.

obscurus athos, Plotz. S. India—N. Kanara. Sikkim—N. Burma. NR.

Atticus Group—(contd.)

γ. Uph cilia normally brown and blue suffusion much reduced. In S. Burma transitions occur to the next form.

obscurus meetana, M. Karens to Mergui. Siam and Tonkin. (= *putimoka* and *sangarava*, Fruh). NR.

δ. Uph cilia white; white band with very little or no blue suffusion and brown spots at end vs 3 and 2. Variable and *athos* forms seem to occur.

obscurus obscurus, Mab. Malay Peninsular. Victoria Point, S. Burma. Java. Pulo Laut. Borneo. NR. (= *perakana*, *jetavana* and *mahinda*, Fruh).

η. Uph cilia white and with broad blue white suffusion. ♂ apex F p reduced. arger than the other races.

obscurus alica, M. Andamans and Nicobars. NR.

5 (2b). Upf always one and more often 2 spots in cell, frequently large and conjoined. Cilia white.

japetus, Cr. (45-50). Java. C. (This occurs all the way to Australia and the variation is very remarkable; some 30 names have been assigned to it. Time may show that it is conspecific with *obscurus*).

6a (1a). Upf always a hyaline white spot in 11 over the cell spot. (In the last group the genitalia of all the species are nearly alike; in this group the differences are very marked).

Nestus Group.

Upf cell spots never conjoined; lower cell spot, lower discal spot and sometimes apical spots in 4 and 5 absent. Uph normally broad pure white tornal area, not surmounted by blue scaling, prominent marginal spots and discal spots in 4-5 and 6, usually spot in cell against upper edge and 2 spots in 7. H always slightly excavated above v4.

6b (12). Unf no discal spots in 1.

6 (7a). Uph tornal white area very narrow, only reaching v3 in ♂ and v4 in ♀; only $\frac{1}{2}$ along dorsum. In ♂ uph a small spot end v2 and a larger spot end v1; in ♀ increasing spots ends vs 3, 2 and 1. ♂ tornus H much produced. Unh costa dark to v6.

toba, DeN. (35-40). The Small Snow Flat. ? Khasi Hills (Elwes). S. Burma, Peninsular Siam, Malay Peninsular, Sumatra Nias, Borneo. R. (= *nana*, Elwes).

7a (6). Uph tornal white area at least to v4 and half way along dorsum.

7 (8a). Uph tornal white area not above v4 or only faintly; very small spots at ends vs 4, 3, 2 and large spot end v1. Clasp.

waterstradti, Elwes. (35-45). Waterstradt's Snow Flat. Peninsular Siam, Malay Peninsular, N. Borneo and Java. R. (= *tubulus*, Fr. This is var b of Distant's *calligana*).

8a (7). Uph tornal white area always to v6 or beyond, running behind discal spot in 4-5.

8 (9a). Uph a dark postdiscal spot on the white area in 1 (may be absent) and in 3 against the discal spot in 4-5; large increasing spots ends vs 4, 3, 2, 1 and sometimes tornus; may be blue suffusion between these spots.

menaka, M. (35-45). The Spotted Snow Flat. Kashmir to Karens. W. China and Tonkin. C. (= *vulturina*, Plotz and *gavina*, Fruh).

9a (8). Uph no postdiscal spots in 1 and 3.

9b (11). Uph prominent increasing spots ends vs 4, 3, 2 and 1.

9 (10). Unh spot in 4-5 circular.

α. Uph marginal spots separate, no blue suffusion between them.

litigiosa vajuna, Fruh. (35-45). The Water Snow Flat. Ceylon. S. India. NR.

β. Uph spots usually more contiguous and sometimes with blue suffusion in between.

* *litigiosa litigiosa*, Mösch. Sikkim to Burma. Andamans. W. China. Siam. Hainan. (= *eson*, Bdv nom nud, *multipunctatus*, Crowley and *cohaerens*, Mab; *atticus*, Auct nec Fab). NR.

10 (9). Unh spot in 4-5 small, double, much smaller than the corresponding spot uph.

sumbawana, Elwes. (35-45). The Sumbawa Snow Flat. Sumbawa, Lombok and Flores. R.

Nestus Group—(contd.)

11 (9b). Uph only equal spots ends vs 2 and 3; no spot end v1 and spot end v4 completely conjoined to the apical dark area. H tornus more produced. Clasp

calligana, But. (35-45). The Malayan Water Flat. Malay Peninsular, Sumatra, Borneo, Nias. NR. (= *yapatha*, Fruh). (*nestus*, Fd, from the Moluccas belongs to this group and differs from the other members in having 2 more or less prominent discal spots in 1 unf; there are 22 named forms, which represent certainly numerous well defined races and very possibly more than one species).

I. 21. Abraximorpha. The Flats.

1 (2). Above slate brown with numerous white markings, presenting a chequered appearance. Uph white with large slate brown spots. Unh dark markings restricted, veins white. Palpi orange. Antennæ black.

dauidii, Mab. (45-55). The Chequered Flat. S. Shan States, W and C China. R. (Race *ermasis*, Fruh, Formosa).

2 (1). Above and below dark brown, base upf, most of uph and all unh clothed olive scales. Upf with hyaline white spots as in *Celaenorhinus*, large spot in cell over origin v3 and opaque costal spot above it, large spot in 2 immediately below, detached smaller spot in 3 and in 1 towards tornus from v1-2, small detached apical dots in 4-8, spot in 6 being midway between spots in 5 and 7. H cilia prominently chequered dark brown and white. Unh there may be a small white spot in cell under origin v6 and a discal spot in 6. Palpi yellow below. Antennæ pale yellow on inside under club.

chamunda, M. (45-55). The Olive Flat. Sikkim to S. Shan States. NR.

Though very dissimilar in appearance, the structure and genitalia of these two species are nearly alike.

I. 22. Odina. The Flats. (Plate 30).

Orange and black, no hyaline spots.

1 (2). Above orange with black spots on inner half upf and a broad black border bearing a very narrow, highly zigzag ochreous line; uph with discal and marginal black spots.

* *decoratus*, Hew. (35-40). The Zigzag Flat. Sikkim to Burma, Tonkin. (= *bicolor*, Ob). VR.

2 (1). Above orange or yellow with irregularly placed black lines enclosing large patches of the ground colour, the black lines are narrow and the orange areas predominate; margin black.

* *hieroglyphica orygia*, DeN. (35-40). The Polygon Flat. Dawnas to S. Burma. VR. (races are—*hieroglyphica*, But, Malay Peninsular, Sumatra, Borneo and Labuan, with broader black lines—*cuneiformis*, Semp, Philippines—*chrysomelaena*, Mab, Celebes).

I. 23. Mooreana. The Yellow Flats. (Plate 30).

Above black. Upf with numerous small hyaline white spots including one on costa over cell spot 2 in 1, discal spots in 2 and 3 narrow and oblique, 2 spots in cell and apical series 4-8. Uph with broad yellow tornal area to v5, surmounted by large dark discal spots, separated by pale veins.

a. Uph and unh tornal area deep yellow, continued unh by yellow veins to base.

trichoneura pralaya, M. (35-45). The Yellow Flat. Sikkim to N. Burma. NR. (= *pellita*, Fruh, Tonkin and Hainan).

β. uph tornal area paler and unh very pale yellow, basal ½ wing being bluish white.

* *trichoneura trichoneura*, Fd. Karens to S. Burma, Malay Peninsular, Sumatra, Nias, Java. NR. (= *nivosa* and *niva*, Fruh).

(Races are—*trichoneuroides*, El, Borneo).

(Species belonging to the group are—*boisduvali*, Mab, Celebes with race *princeps*, Semp=*bazilanus*, Fruh, Philippines. *abstrusus*, Fruh, Dutch New Guinea. *paradoxus*, Fruh, Borneo).

I. 24. Daimio. The White Flats. (Plate 30).

Above dark brown. Upf prominent hyaline white spots in 2, 3 and cell, apical dots in 4-8, usually non-hyaline spot in 1. Uph prominent white or

I. 24. Daimio—(contd.)

yellow discal area, outwardly bordered by dark discal spots lying on or near a broad dark submarginal band and outwardly bordered by an obscure irregular dusky pale line (No. 7 is aberrant).

1a (7). Uph plain brown or with a white or pale yellow central band.

1 (2a). Palpi white below. Cilia prominently white chequered. Upf spot in cell stretches across cell and a detached spot in 11 above it, spot in 1 detached large and sharply defined, apical spots large, conjoined. Uph with a prominent white discal area, spot in cell, base bluish. Abdomen narrowly white ringed.

Tethys Group.

tethys birmana, nov. (35-40). The China Flat. N. Shan States. VR. (Races are *tethys*, Men=*lineata*, Mab, Japan and N. China, with the uph plain, *moorei*, Mab=*felderi*, But, China, differing from *birmana* in being larger, the white band uph broader with edges not so parallel and the black spots not showing so clearly. *formosana*, Fruh, Formosa).

2a (11). Palpi yellow below. Cilia plain or very faintly chequered. Upf no spot on costa in 11 over cell spot.

Sinica Group.

2b (4a). Uph and unh always a prominent black spot at lower edge cell over bases vs 3 and 4 (this spot may be present in *sinica*).

2 (3). Upf spot in cell small = spot in 3, over centre of spot in 2 and against lower edge cell; apical spots 6-8 irregular, separate dots; obscure small diffused spot in 1 against v1. Uph band yellow and very narrow = $\frac{1}{2}$ dark border, cell spot conjoined to dark area. Abdomen brown with very narrow white rings.

phisara M. (35-45). The Dusky Yellow-breast Flat. Sikkim to Burma, Perak. NR. (= *expansa*, Mab).

3 (2). Upf spot in cell large, reaching across cell and tapering towards scv, as large as spot in 2; spot in 1 extends to dorsum. Abdomen outer $\frac{1}{2}$ ($\frac{1}{3}$ in ♀) brown, with narrow white rings, inner part pale yellow (white in ♀).

α. Upf spot in 1 usually as broad as the spot in 2 and flanked on either side by 2 black spots; apical spots conjoined and inner edges in line; cell spot placed so that its centre is over the inner edge of spot in 2. Uph pale band at least = dark margin, yellow in ♂, white in ♀; spots in cell and 7 detached; veins pale to margin. Variable.

* *bhagava bhagava*, M. (35-45). The Common Yellow-breast Flat. Bombay to Central Prov. Sikkim to Burma. NR. (*milliana*, Swin).

β. Much darker and markings narrower. Upf apical spots more irregular; inner edge cell spot and spot in 2 in line; spot in 1 against v1. Uph band white and at most = dark margin.

bhagava andamanica, W. M. Andamans. NR.

4a (2b). Uph and unh no spot in cell (except individuals of *sinica*). Upt traces of a pale submarginal fascia; spot in cell central over spot in 2; apical spots small.

4 (5a). Upf pale spot across 1 extends to dorsum; spot in cell against lower edge. Abdomen in ♂ outer $\frac{1}{2}$ brown, rest white; in ♀ brown narrowly white ringed.

α. Upf cell spot a dot; spot in 1 usually twice as wide as the spot in 2. Uph band white, twice as wide as dark margin.

sinica narada, M. (35-40). The White Yellow-breast Flat. Sikkim. NR.

β. As last, but upf spot in 1 usually = spot in 2. Uph white band = dark margin, no spots detached, but in ♀ there is very rarely a spot in cell and the spot in 6 is semi-detached.

sinica indica, nov. Assam to Tavoy. NR.

α. Upf cell spot as large as the spot in 2; spot in 1 obscure. Uph white band narrow = $\frac{1}{2}$ brown margin; large semi-detached spots in cell and 7.

sinica sinica, Fd. C and W. China. (= *diversa*, Leech and *epitalas*, Ob).

5a (4). Upf white spot in 1 small, against v1 or absent. Uph no spots detached. Abdomen brown, white ringed.

5 (6). Upf cell spot very small, against upper edge and = apical spot, or there may be a very narrow oblique streak across the cell; ♀ narrow white spot in 1 against v1, extending to dorsum. Above markings all small. Uph ♂ discal band smoky white, = $\frac{1}{2}$ border and runs from v1 to v6; in ♀ white and = border.

I. 24. *Daimio*—(contd.)

limax dirae, Plotz. (35-40). The Malay Yellow-breast Flat. R. Tavoy to S. Burma. Malay Peninsular, Sumatra, Borneo, Nias. (= *minima*, Swin; *graya*, Stg; *fumosa*, E1; *formosa*, Swin. Races are *limax*, Plotz = *visana*, Fruh, Java—*corona*, Semp, Philippines).

6 (5). Upf cell spot larger than the spot in 3 and reaches the scv. Uph black margin extends into cell, pale band yellow and = $\frac{1}{2}$ margin.

celebica, Fd. (40). Celebes. (= *permena*, Hew and *nivescens*, Fr).

7 (1a). Uph and unh orange with dark costa and termen; black postdiscal spots on the orange area and spot end cell. Above black with slaty blue glaze.

Tabrica Group.

α . Upf 5 apical spots; discal spots in 3, 2 and cell very large and conjoined; 2 small spots in 1. Uph inner edge dark margin crenulate.

tabrica tabrica, Hew. (50-55). The Orange Flat. Darjiling. VR (? unique).

β . Upf no apical spots. Uph dark margin even, postdiscal spots conjoined to dark border apically.

* *tabrica pinwilli*, But. Assam to Burma, Malay Peninsular, Sumatra, Borneo. VR. (*bowringi*, Joicey and Talbot from Hainan is a very distinct race).

I. 25. *Coladenia*. The Pied Flats. (Plate 30).

Above fulvous, dark brown or grey. Upf with large hyaline white or yellow discal spots. Uph usually with dark spots.

1a (6). Uph dark spots.

1b (4a). Upf dark spot in 1 before middle. Uph in addition to discal series dark spots, there is a spot end cell, base 1 and base 7.

1c (3). Upf costal spot above cell spot confined to 11.

1 (2). Uph in 1 a tawny discal spot followed by a tawny submarginal spot and white cilia. Upf hyaline spots—white. Unh with dark spots.

α . Dark with small markings, cilia H dark brown; upf apical spots small, separate; uph dark spots diffused.

indrani tissa, M. (35-40). The Tricolour Pied Flat. Ceylon. NR. (= *lankae*, Plotz).

β . Dark brown with large markings and cilia H prominently chequered white. Above and below prominent tawny submarginal spots. Unf apical spots coalesced.

indrani indra, nov. S. India to Bengal. NR.

γ . Tawny brown. Uph black spots sharply marked, tawny submarginal spots faint.

indrani indrani, M. Mussoorie to Sikkim. NR.

δ . Above bright ochreous. Upf and below tawny spots very large and prominent. Unh yellow.

* *indrani uposathra*, Fruh. N. Burma to Karens. NR.

η . Tawny brown; brighter than *indrani* and larger; upf and below tawny spots large and prominent. Unh cell and 8 yellow.

indrani atarana, nov. Ataran Valley. VR.

2 (1). Upf single dark or 1 (or 2) hyaline spot in 1 under the discal spot in 2; no tawny submarginal spot. F hyaline spots white in ♀, yellow in ♂. Above dark tawny or fulvous brown. Uph dark spots large and suffused. Unh suffused orange and black spots.

α . Dark and dull. F hyaline spot in cell small, double, upper spot smaller and just joined to the lower spot at its base; spot in 3 detached.

dan dan, Fab. (30-35). The Fulvous Pied Flat. S. India. C.

β . Larger, brighter. F hyaline spot in cell large and usually single; spot in 3 usually conjoined to cell spot and to spot in 2, nearly to base of cell 3.

* *dan fatih*, Koll. (35-40). Kulu to N. Burma. C.

γ . Small and dark. Upf spot in quite detached and small. Very variable. *dan dhyana*, Fruh. (25-35). Karens to S. Burma, Siam, Malay Peninsular. C. (Races are—*dea*, Leech, W. China.—*sumatrana*, Fruh, Sumatra—*eacus*, Lat = *dichroa*, Plotz, Java, Bali—*fulvescens*, E1, Borneo—*lombokiana* and *sumbawana*, Fruh—*ignia*, Semp = *semperi*, E1, Philippines—*celebica*, Fruh, Celebes).

I. 25. *Coladenia*—(contd.)

3 (1c). Upf costal spot continued to costa. Above grey brown. Uph with prominent dark spots, rather diffused. ♀ paler and spot in 3 fills base 3.

* *laxmi*, DeN. (40-55). The Grey Pied Flat. Sikkim to Burma. Borneo. VR. (= *buchananii*, DeN). (Race *sobrina*, E1, Sumatra).

(De Niceville commenced by correctly describing a ♂; later he called this a ♀ and described as the ♂ what I consider to be *Tapena atilia*).

4a (1b). Upf no spot before the middle in 1. Uph and unh no dark spot base 1 and 7. Above dark brown; spots white upf and costal spot above cell spot confined to 11. Uph black spots sharply defined.

4 (5). Uph cilia in 6 and 7 and at extreme apex upf white. Back of tegumen simple; clasp lobes equal.

agni, DeN. (35). The Brown Pied Flat. Sikkim to Burma, Borneo.

5 (4). Upf and uph cilia uniform. Darker. Unf a pale diffused spot in 1 outside the discal spot. Back of tegumen with a dorsal crest; upper lobe of clasp small.

agnioides, E1 (35). Elwes' Pied Flat.

6 (1a). Uph prominent large hyaline spot end cell and a discal series. Above grey. Upf no spot before the middle in 1 and cell spot not to costa.

vitrea, Leech (40). E. Thibet. The Chinese Pied Flat. (= *maeniata*, Ob) VR.

I. 26. *Sarangesa*. The Small Flats. (Plate 30).

Above dark brown, black marbled and with small hyaline spots F; usually a double or 2 single cell spots and a spot on costa above, spots in 2 and 3 and apical 6-8. Unh a discal row, spot end cell and bases 1 and 7.

1a (3). Unh spots small and white.

1 (2). Cilia H prominently chequered black and white. Upf spots minute or absent. Small.

α. Cilia F obscurely chequered. Upf with minute spots, including spot in 1 before middle and obscure irregular submarginal row, more prominent unf. Uph traces of small pale spots. Unh very prominent minute dots.

sati sati, DeN. (25-30). The Tiny Flat. Cutch to Central Prov. NR.

β. Cilia F and H prominently chequered. Above inky black, frosted sparse white scales, no spots. Below traces of spots.

* *sati hopkinsi*, Evans. Madras, Bangalore. R.

2 (1). Cilia very obscurely chequered. Upf single spot across cell, spot in 2 comparatively large and quadrate, 2 dots in 1. Unf obscure irregular submarginal spots. Unh small white spots. Uph obscure large dark spots.

purendra, M. (30-35). The Spotted Small Flat. N. Kanara, Bombay to Sind and Central Prov. Kangra to Kumaon. NR.

3 (1a). Unh with dark spots which are obscurely traceable uph

α. Unh dorsal $\frac{3}{4}$ including cilia white with sharply defined small spots, 2 in 1, one in each 2 and 3, large spot in 4-5. Upf spots minute, 2 dots in cell and dot on costa above them.

* *dasahara albicilia*, M. (30-35). The Common Small Flat. Ceylon C. (= *sezendis*, Plotz).

β. Unh grey brown with large diffused dark spots. Upf very variable, may be single spot across cell or 2 dots; discal dots in 2 and 3 present or absent. Uph cilia white.

dasahara davidsoni, Swin. S. India to Bombay. (= *hampsoni*, Swin). NR.

γ. As last, cilia brown, sometimes whitish.

dasahara dasahara, M. Central Prov. Kangra to Burma. Siam, Tonkin. C.

I. 27. *Darpa*. The Angles.

Above black with small hyaline spots upf, 1 or 2 in cell, may be 2 in 1, discal in 2 and 3, apical 4, 5 (may be absent) and 6-8. Uph broad pale tornal area, surmounted by a row of large black discal spots, separated by pale veins. Unh mostly pale, small discal dark spots 1-3, large 4-5. 2 spots in 7, spot upper edge cell. H produced and tornal cilia elongate. Palpi with loose brown and white or yellow scales.

1 (2a). Termen F and H highly crenulate; H angled at v3 and v7. Upf with bands of white scaling; cell spot across cell reaching v12 and continued along my to a small spot near base 2, apical spots 6-8 conjoined and in a straight line. Uph tornal area pale yellow, extending to v5 and bearing small

I. 27. Darpa—(contd.)

black spots ends vs 2 and 3; vs 6 and 7 pale to margin. H ternal $\frac{1}{2}$ clothed long hairs.

hanria, M. (35-40). The Hairy Angle. Mussoorie to Assam. R.

2a(1). Termen F and H comparatively even. H only angled at v4. Upf spots normal, no spot on costa over cell spot, apical spots 6-8 separate and irregular. Uph ternal area pure white.

2(3). Uph and unh 2 small spots on white area ends vs 2 and 3. Uph white area to mid vs 3 and 4. Palpi below brown and white.

striata, Druce. (35-40). The Striated Angle. Assam to Burma, Malay Peninsular, Sumatra, Borneo. R. (= *dimidiata*, Fr.)

3(2). Uph and unh no spots on white ternal area, which extends to v4. Palpi yellow and brown below.

pteria, Hew. (35-40). The Snowy Angle. S. Burma, Malay Peninsular, Borneo, Philippines. R. (= *dealbata*, Dist).

I. 28. Tapena. The Angles. (Plate 31).

1(2). Above nearly black in ♂, brown in ♀. Uph an upper hyaline spot in cell between origins vs 6 and 7. Upf dark diffused central Y band, black spot near base cell, base 1 and near tornus, 2 or 3 hyaline apical dots. Uph narrow dark discal band and dark spot base 1, mid and base 7. ♀ upf dark markings faint; separate hyaline spots cell, 2, 3 and dot in 1.

α. Large. Upf only 2 apical spots.

* *thwaitesi thwaitesi*, M. (40-45). The Black Angle. Ceylon. R.

β. Small. Upf 3 apical spots. Paler.

thwaitesi hamptoni, El. (30-35). S. India. R.

γ. Small and dark. Upf usually with 3 prominent apical spots.

thwaitesi minuscula, El. (30-35). Assam to S. Burma, Malay Peninsular, Sumatra, Borneo VR.

2(1). Above grey brown. Uph no hyaline spot, a central and discal dark band. Upf hyaline spots as in *Coladenia laxmi*, but costal spot in 11 not to costa. Unh black spots as in *laxmi*.

atilia, Mab. (40). Perak, Borneo, Philippines, Celebes. VR.

(= *palawana*, Stg. Described by De Niceville as ♂ *laxmi* in B. N. H. S. 1891).

I. 30. Ctenoptilum. The Tawny Angles. (Plate 31).

Above ochreous brown. Upf and uph with white hyaline spots crowded together in the middle. Upf large spot across cell and 2 spots on the costa above it, also bar end cell, 2 spots in 1, large discal spot in 2 under cell spot and sometimes a dot base 2, small spot in 3, dots in 4 and 5, apical spots 6-8; dark band beyond spots. Uph spots numerous and crowded.

1(2). Upf hyaline spots large at apex, spot in 7 elongated and much longer than the spots on either side; a spot base 2. Bright ochreous brown above.

* *vasava*, M. (35-40). The Tawny angle. Mussoorie to Burma. NR.

(*chinensis*, El. is the larger, brighter race from W. China).

2(1). Upf apical hyaline spots 6-8 smaller and of equal size; no spot base 2. Below prominently frosted white scales.

* *multiguttata*, DeN. (35-40). The Multispot Angle. Manipur to Burma. R.

I. 31. Odontoptilum. The Angles. (Plate 31).

Above chestnut brown. Upf with hyaline white spots, but discal spots small or absent. Uph with white lines. Unh mostly white with some dark markings at tornus and costa.

1(2). Upf no white lines; inner $\frac{2}{3}$ pale brown outer $\frac{1}{3}$ bright chestnut; broad dark chestnut band before middle between v1 and scv and a similar postdiscal band; discal white crescentic spot in 2 and dot in 3; prominent apical spots in 7 and 8 and may be a dot in 6. Uph pale brown and apex dark chestnut; straight narrow white sub-basal white line, similar postdiscal irregular line, submarginal and marginal lines; clothing of whitish hairs about dorsum and tornus.

* *angulata*, Fd. (40-45). The Chestnut Angle. S. India. Kulu to Burma. S. China, Malay Peninsular, Siam, Sumatra, Java, Borneo, Lombok, Sumbawa, Philippines. NR. (= *sura*, M; *sumatrana*, *mahabina*, *subangulata*

I. 31. Odontoptilum—(contd.)

and *hyperides*, Fruh; *helisa*, Semp; *hypecides*, Doh; *kuki*, Tyt-Bing MS—is an aberration. The Celebes race is *helias*, Fd).

2(1). Upf with white lines; a line extreme base continued on H; a short obscure line under origin of v2; a central line from costa to dorsum across H to the white dorsum; a discal line from v3 to dorsum and continued as a highly irregular line on H; apical hyaline spots small, may be a hyaline dot in 3: H cilia white. Above dark chestnut. Upf rather obscure submarginal band of white scaling. Uph termen narrowly white, followed by a dusky band and then a broad irregular white band obscurely crossed by dark veins. Unh white to v7, faint dark tornal spots.

* *pygela*, Hew. (35-40). The Banded Angle. Karens to S. Burma, Malay Peninsular, Sumatra, Nias, Java, Banka, Borneo. R. (= *ragupta* and *javanica*, Fruh. *leptogramma*, Hew, replaces this species on the Philippines).

I. 32. Caprona. The Angles. (Plate 31).

Upf with hyaline spots; across cell (may be divided in 2 and upper part may be absent); large discal spot in 2 and small spot in 3; apical spots 6-8 (also sometimes in 4 and 5, usually so in ♀).

1(2). Upf no prominent pale crescentic bar base cell; usually 2 (or one lower) hyaline discal spot in 1.

a. WSF—Upf dark brown with a more or less prominent central and submarginal ochreous area from costa to dorsum; uph a central golden to dusky ochreous central band divided by dark veins and outwardly flanked by conjoined dark spots; a broad dark ashy border from dorsum to v4. Unh white with basal, discal and submarginal rows of dark spots, cilia dark brown.

DSF—Dark brown with numerous dark ochreous spots, exactly as in *agama* but not so well defined and discal spots in 1 are hyaline. unh as WSF, but all spots very small; submarginal spots form dusky continuous band. Cilia very prominently chequered brown and white.

ransonnettii ransonnettii, Fd. (35-45). The Golden Angle. Ceylon. NR (DSF. VR). DSF figured by Ormiston as *siamica*).

β. WSF as last. DSF very variable. Normally bright ochreous above upf dark sub-basal band and hyaline spot near base cell (may be a dark spot); broad dark band outside discal spots and separate band outside apical spots; dusky submarginal band. Uph sub-basal, discal and submarginal row of dark spots (latter often absent). Below paler ochreous, more or less frosted white scales. Cilia whitish, faintly chequered. Above may be dark ochreous brown with the dark markings obscured and below the frosting may completely obscure the dark markings; there are to be found transitional forms to the Ceylon DSF, to the WSF and to the race *alida*.

* *ransonnettii potiphera*, Hew. S. India to Central Prov., Punjab, Kumaon to Assam. NR. (= *saraya*, Doh and *taylorii*, DeN., *hamiltoni*, DeN, for which Mabilie erected the genus *Gerosis*, is an aberration from Assam with the grey scaling above covering the whole wing, except for a dark central band upf and dark discal spots uph).

γ. A single variable form generally resembling the DSF of the preceding race, but typically much darker brown above, with very obscure dark markings. Below much whiter, due to intense frosting, but dark diffused spots unh show clearly.

* *ransonnettii alida*, DeN. Assam to Dawnas. NR. (*siamica*, Swin, from the Siam Shan States, is a large bright *agama*-like form, very like the Ceylon DSF = probably *mettasuta*, Fr. *erosula*, Fd = *pelligera*, Fruh, is the Celebes race).

2 (1). Above dark brown with numerous pale yellow spots in addition to the hyaline spots; prominent crescentic pale bar end cell; discal spots in 1 non-hyaline. Upf prominent row of postdiscal and submarginal pale spots; central spot in cell, base 2 and in 1 below it; spot in 11 over hyaline cell spot. Uph large pale spot in cell, discal, postdiscal and submarginal rows of pale spots. Unh white or pale yellow with prominent black spots as in *ransonnettii*.

* *agama*, M. (30-50). The Spotted Angle. S. India to Mussoorie and Burma. Siam, Tonkin, Java, Bali. (= *syrictus*, Fd; *pelias*, Fruh; *parvo-punctata*, Mab. Moore's name is usually disregarded since he did not describe

I. 32. Caprona—(contd.)

the imago, but as he described the larva and pupa, under the international rules his name has priority).

var. *etwesi*, Watson. (30-35). Constantly smaller; upf the spot before the middle in 1 is double and uph the discal row of spots is incomplete; only a spot end cell and mid cell, no inner spot in 7 and 1. The genitalia are as in *agama*. Assam to Shan States. R.

I. 33. Gomalia. The African Marbled Skipper. (Plate 31).

Above olive brown with greenish hairs. Upf a narrow black band before the middle from v1 to scv; semi-hyaline small spots across cell, discal in 2 and 3 and apical in 6-8. Uph a regular central white band from v1 to v7 and an obscure submarginal pale band. Below rather pale brown, white markings more extensive; unf dorsum pale; unh spot near base cell and base 7, discal band to v8.

* *elma albofasciata*, M. (25). Ceylon. S. India to Poona. Sind. Baluchistan ? Kangra. R. (= *titoralis*, Swin).

I. 34. Hesperia. The Skippers. (Plate 31).

Above dark brown or green with numerous white semi-hyaline spots F and H. Unh basal, central and submarginal white bands. Upf normal spotting—spot across cell at or beyond middle (sometimes one or two streaks on costa above it); discal spots in 2 and 3 and may be 1 or 2 spots in 1; apical 6-8 and usually in 4 and 5; in addition there may be a spot near base cell, a spot or streak at end cell, spot before the middle in 1 and rarely a spot above it at base 2, also a row of tiny submarginal spots. Unh pattern very variable; normally a spot base cell and usually a spot on either side at bases 1 and 7; continuous discal row 1-7 running through large spot end cell in 4-5; submarginal row small irregular spots; the spots from below appear more or less uph.

1a (11a). Upf apical spots 4, 5 absent, or if present in continuation of spots in 6-8; more or less prominent row of small submarginal spots. Antennæ club nearly straight or bent beyond middle. ♂ no tuft on hind tibia.

1b (6a). Upf spot about mid cell well behind origin of v3 and the discal spot in 2; spots in 1 consist of a spot under the spot in 2 and a short streak behind, along v1. Uph never a discal spot in 7. ♂ no costal fold.

Sao Group.

1c (3a). Unh inner spot in 7 placed immediately over the spot base cell and is continued to costa; outer spot in 7 in line with spot base 6 and end cell, thus forming a regular basal and central band. Upf prominent spot end cell. Unh greenish brown.

1 (2). Unh submarginal spots separate. Upf marginal spots prominent; a spot base cell, making 3 cell spots. Uph usually a spot base cell.

* *galba*, F. (25). The Indian Skipper. Ceylon. S. India to Karachi, India generally to Shan States. (= *superna*, M). C.

2 (1). Unh submarginal spots conjoined to a band, making 3 parallel bands. Upf submarginal spots faint and only show in middle. Upf and uph no spot base cell. Tegumen divided at tip instead of pointed as in *galba*.

zebra, But. (25). The Zebra Skipper. N. Punjab. R (= *hellas*, DeN).

3a (1c). Unh inner spot in 7 placed midway between spot base cell and end cell and is continued to costa; outer spot in 7 near margin.

3b (5). Upf prominent spot end cell and usually a spot base cell upf and uph.

3 (4). Upf discal spot in 2 continued full width across 1 to v1 and a pale streak in 1 behind it.

α. Larger. F termen more rounded. Unh greenish brown and spot in 7 nearer spot end cell. Unf apex mostly white, obscuring the submarginal spots.

phlomidis phlomidis, H. S. (33). The Persian Skipper. Turkey to Persia. NR. (*amenophis*, Rev. is the race from near Cairo).

β. Smaller. Upf and unh markings wider. Unh yellow brown.

phlomidis geron, Watson. (30). W. Persia and Baluchistan. R.

4 (3). Upf discal spot in 2 just entering 1. Above exactly as *galba*. Unh greenish brown. Clasp as *sao*.

evanidus, But. (25). The Sind Skipper. Arabia and Sind. R. (?= *adenensis*, But).

Sao Group—(contd.)

5 (3b). Upf only a faint line end cell and no spots base cell. Darker. Unh brick red, spots white. Above discal and apical spots prominent; submarginal spots faint.

sao lugens, Stg. (30). The Brick Skipper. Chitral, Ferghana, NR at 12,000 feet. (*sao*, Berg, occurs from Europe to the Amur and there are a number of named races and varieties. *orbifer*, Hub, is one of the races).

6a (1b). Upf spot about mid cell nearer end cell, over origin of v3 and usually over the discal spot in 2; usually single spot across cell or double, one above the other; only traces of spot base cell upf, but present uph; upf only faint line end cell. ♂ upf costal fold more or less developed.

Proto Group.

6b (9a). Unh large white spot mid 7 over origin v6 in continuation of spots end cell and base 6, continued to costa and no spot in 7 interior to this spot, but there is an outer spot near margin. Above submarginal spots prominent and uph with discal spots in 7.

6c (8). Upf 2 spots in 1 between the discal and submarginal spots. Unh submarginal spots nearer the margin.

6 (7). Unh rather dark green. ♂ H tibiae spinose.

cribrellum, Evers. (34). The Spinose Skipper. S. Russia to Turkestan and Amur. (= *hybrida*, Mab).

7 (6). Unh orange with broad white markings or better described as white with central and postdiscal black edged, orange bands, H tibiae clothed, not spinose. Above markings large and prominent.

antonia gigantea. Stg. (40). The Large Orange Skipper. Ferghana, C. Asia. (*antonia*, Speyer, flies from Turkestan to the Amur and is rather smaller).

8 (6a). Upf no spots in 1 between the discal and submarginal spots. Unh yellow green to dark green, submarginal spots not so near to the margin.

tesselum, Hub (35). The Tesselated Skipper. Russia to the Amur. (There are several named races, etc.; *nomas*, Led, appears to be conspecific).

9a (6b). Unh spots in 7 smaller and not continued to costa. Above submarginal spots faint.

9 (10). Unh white spot in 7 in continuation of the spots at end cell and base 6 and an inner spot in 7 over spot base cell. Unh red brown to pale brown. Uph spot in 7 present or absent. Upf spot in 2 more or less under the cell spot.

proto, Esp. (35). The Proto Skipper. Algeria. Spain to Persia and Turkestan. (There are several named races, etc. The C. Asia race is *staudingeri*, Speyer and the Persian *plurimacula*, Christoph).

10 (9). Unh a white spot in 7 on either side of the spot base 6; inner spot far from spot base cell. Unh greenish brown or yellow green. Upf usually 2 spots in 1 between the discal and submarginal spots.

poggei, Led. (35). The Syrian Skipper. Syria to Baluchistan and C. Asia. R. (= *lutulentus*, and *fucata*, Mab; *nobilis*, Stg).

11a (1a). Upf always a spot in 5 and usually in 4; these spots are shifted out well beyond the apical spots in 6-8. Upf submarginal spots usually absent but may be faint or incomplete. Upf and uph no spot base cell and usually only a faint streak end cell. ♂ with costal fold (except *alpina*) and a tuft on the hind tibiae.

11b (17a). Unh extreme base 7 dark; always a pale spot in 7 near base and a spot over the spot end cell; spots do not reach the costa, but entire costa may be pale.

11 (12a). Upf a spot end cell and before the middle in 1, more sharply defined than the other spots; spot mid cell well behind the origin of v3; 2 equal white streaks one above the other over the cell spot. Unh spot near base 7 small circular, not, or only just, touching the scv; origin v6 nearer outer than inner spot in 7; upper edge of spot in 5 produced into cell; submarginal spots irregular. Uph spots sharply defined and usually a spot in 7 and submarginal spots. Tegumen with horns near the base and clasp without the vertical spine characteristic of the *sidæ* group.

Malvae Group.

Unh dark ochreous brown with small well defined spots; dorsum dark brown. Tegumen bipartite.

Malvae Group—(contd.)

malvae, L. (25). The Grizzly Skipper. Europe to Amur. China. (Several races, etc., have been named; the Chinese race is *schansiensis*, Reverdin). (Other species in the group are *malvoides*, El, S. Europe and *melotis*, Dupon = *hypoleucus*, Led, Syria and Palestine).

12a (11). Upf spot end cell and before middle in 1 never so sharply defined as the rest of the spots and often one or both are absent. Unh inner spot in 7 always reaches scv and is never circular.

Sidae Group.

12b (14a). Unh upper edge of spot in 5 continued into cell more or less markedly; inner edge spots 4-5, base 6 and mid 7 not in line.

12 (13). Unh spots at bases cell and 7 do not overlap. Unh spots in 1 and 2 very enlarged and directed to the spot end cell. Upf a double streak on costa immediately over the cell spot; discal spot in 2 nearer cell spot than the spot in 3. Above very dark with prominent spots. Unh dark ochreous brown or greenish with very broad white markings.

α. Upf prominent pale markings on disc and about tornus.

* *alpina alpina*, Ersch. (25-30). The Mountain Skipper. Turkestan, Chitral to Kashmir, 10,000 feet. NR. (= *darwazica*, Groum).

β. Upf often unmarked or markings very reduced.

alpina cashmirensis, M. Kashmir. 10,000 feet. NR.

(Allied species are—*cacaliae*, Ramb, Mountains of Europe and Altai—*andromedae*, Wallgr, Norway and Alps—*centaureae*, Ramb, = ? *conyzae*, Guen, N. Europe and N. America—*freijsa*, Warren, Circumpolar).

13 (12). Unh the spots base 7 and base cell overlap. Upf the submarginal spots very regular and on unh lie against a pale submarginal band. Unh with conspicuous orange or yellow, black edged, bands, recalling *antonia*.

sidae, Esp. (30-35). The Orange Skipper. C. and S. Europe to Asia Minor and Turkestan. (The Turkestan race is *struweii*, Pungeler). (Allied species are—*carthami*, Hub, N. and C. Europe to W. Asia—*onopordi*, Ramb, S. Europe and N. Africa).

14a (12b). Unh upper edge of spot in 5 not entering cell; inner edges of spots end cell, base 6 and mid cell in a straight line.

14 (15a). Upf spot near base 1 large, across 1 and an elongated spot at base 2 above it; discal spots in 2 and 3 overlap. Unh yellow green, spots faint, but with spots at bases 2 and 3; submarginal spots in 3 and 6 faint; upper edge spot in 5 continued along v6 towards termen. Unf black.

cinarae, Ramb. (35). The Eastern Skipper. S. Russia to Asia Minor and Turkestan.

15a (14). Upf at most a small spot before mid 1 and no spot base 2; discal spots in 2 and 3 not overlapping. Unh always spots at base 2 and 3.

15 (16). Unh upper edge of spot in 5 continued along v6 towards margin; outer edges of spot base cell and 7 in line; submarginal spot in 2 midway between basal and submarginal spot in 3.

alveus, Hub. (35). The Alveus Skipper. S. and C. Europe to Amur and W. China. (The W. China race is *sifanicus*, Groum).

(Allied species are—*carlinae*, Ramb, Mountains of Europe with race *speyeri*, Stg. from the Amur—*armoricanus*, Ob, France to Turkey—*foulquieri*, Ob, France to Italy).

16 (15). Unh upper edge of spot in 5 not continued along v6; outer edge spot base cell against middle of spot in 7.

serratulae, Ramb. (35). The Northern Skipper. Europe to Syria and Turkestan. (The Turkestan race is *major*, Stg and the Syrian race *alveoides*, Stg).

17a (11b). Unh extreme base cell 7 white, forming part of a basal white band. Upf a spot in cell behind the origin of v3; usually a prominent spot base 2 and below it in 4.

Maculatus Group.

17b (19a). Unh a Y-shaped basal ferruginous band from v1 across cell, the right stalk to the costa, left to v8, stalks separated by the subbasal white spot in 7.

17 (18). Unf black. Unh central white band, very irregular large spot in 1, small spot base 2, none base 3, spot in 4-5 large and quadrate, spot base 6

Maculatus Group—(contd.)

absent, spot in 7 large and expanding to the white costa; ferruginous post discal and submarginal spots very irregular, submarginal spot enlarged in 1 and 2.

bielti, Ob. (30). The Chinese Skipper. W. China and E. Thibet.

18 (17). Unh central white band of equal width, except for the spot in 5, which is expanded inwards and outwards; ferruginous postdiscal band also regular and followed by a pale brown broad marginal band, with small irregular spots on its inner edge. Unf overlaid white scales. Apex F produced and margin straight.

oberthuri, Leech. (25-30). The Thibetan Skipper. Chumbi Valley, E. Thibet, W. China and Yunnan. R. (= *delavayi*, Ob).

19a (17b). Unh a roughly oval-shaped ferruginous band (sub basal), enclosing a small white spot in 7 (may be absent). Unf black, apex prominent (may be overlaid white scales). Unh narrow silver white discal band, expanding to large white patch on the costa.

19 (20). Uph only central white spots (often obscure). Above cilia dark, only faintly chequered. Upf spots in 4 and 5 very small and separate. Unh beyond discal band pale brown with dark ferruginous central band. Very variable.

zona, Mab. (30). The Japan Skipper. Japan to W. China. (= *sinicus*, But and *albistriga*, Mab).

20 (19). Uph with prominent discal and submarginal spots. Above cilia prominently chequered. Upf spots in 4 and 5 usually conjoined. Uph discal spots end in a very broad white costal spot.

a. Unh dark and uniform; discal pale band very narrow and beyond uniform dark.

maculatus maculatus, Br. and Gr. (30). The Maculate Skipper. Japan to W. China. (= *amurensis*, Stg.).

β. Unh much paler; sub-basal ferruginous band sharply marked; beyond the silver discal band pale ochreous brown and a second silver postdiscal band thereon. Unf apex may be white scaled.

maculatus tibetanus, Ob. E. Thibet and W. China.

1. 35. Carcharodus. The Marbled Skippers. (Plate 31).

Above greenish brown; upf paler with a broad dark band before the middle and a similar postdiscal band; hyaline white spots in cell, discal in 2 and 3, apical in 6-8; uph uniformly dark with rather obscure small pale spots in cell and discal and submarginal rows. Unh marked as in *Hesperia*; in 7 a pale spot on either side of the discal band; ground colour yellow brown.

1a (3a). ♂ unf a tuft of hairs from near base v1 on dorsum.

1 (2). Uph and Unh spots comparatively large and diffused. Unh dark area between discal and submarginal pale bands narrower than the discal band. Below paler, greenish grey.

altheae dravira, M. (35). The tufted Marble Skipper. Baluchistan to Chitral and Kashmir. R. (*altheae*, Hub occurs typically in C. and S. Europe with race *orientalis*, Reverdin flying from Turkey to W. Asia).

2 (1). Uph and unh spots small and sharply defined; unh dark area between the pale bands broader than the discal band. Smaller and lighter.

boeticus, Ramb. (35). The Southern Marble Skipper. S. Europe to Syria. (= *marrubii*, HS.).

3a (1a). ♂ unf no tuft. Above and below spots smaller. Above browner with more or less violet reflections.

3 (4). Upf spot in 2 wider than high.

lavatharæ, Esp. (30). The European Marble Skipper. S. Europe to Asia Minor. (= *australiior*, Ver).

4 (3). Upf spot in 2 higher than wide.

* *alceae swinhoi*, Watson. (30). The Plain Marble Skipper. Baluchistan to Chitral and Kashmir. C. (*alceae*, Esp., flies from C. and S. Europe to W. and C. Asia and there are several named races or varieties).

1. 36. Nisoniades. The Dingy Skippers. (Plate 31).

Above dark brown, marbled on F with ashy bands; no hyaline spots other than the apical spots in 6-8, which may be absent. Cilia dusky.

1a (3). ♂ with a costal fold. Uph with postdiscal and terminal pale spots,

I. 36. *Nisoniades*—(contd.)

1 (2). Upf no terminal pale spots. Uph spots yellow, comparatively large and prominent; a spot end cell. Unf a yellow spot end cell and postdiscal and terminal spots.

α. Large. Upf yellow postdiscal spots suffused, irregular. Upf ashy central band broad = width of space 2.

montanus montanus, Br. (40). The Yellow Dingy Skipper. Japan to C. China. (= *rusticanus*, But).

β. Small. Unf pale postdiscal spots regular, well defined. Upf ashy central band narrow = $\frac{1}{2}$ width space 2.

montanus nigrescens, Leech. (35). W. China and E. Thibet (= *leechi*, E1).

2 (1). Upf with small terminal spots. Uph spots small, whitish and obscure. Unf outwardly paler and spotless. Below pale brown.

tages, L. (30). The Dingy Skipper. Europe to Amur. (= *cervantes*, Gras; *popoviana*, Nord; *sinina*, Groum; *unicolor*, Frey; *clarus*, Conrad; *subclarus*, Ver).

3 (1a). ♂ no costal fold. Upf and uph unmarked except for the ashy bands and apical spots.

α. Inky black, very uniform; apical spots prominent.

* *marloyi marloyi*, Bdv. (30). The Inky Skipper. S. E. Europe to Persia, Turkestan and Chitral. NR. (= *sericea*, Frey and *rustan*, Koll).

β. Larger, paler, upf with the ashy bands better marked and the apical spots faint. Unh with traces of postdiscal spots. Cilia greyer.

marloyi pelias, Leech. (35). W. China and E. Thibet. (= *erebus*, Groum).

(To be continued)